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INDEX OF CONTENTS OF VOL. VIII.

January to December, 1892.

Page
About Thread Making 164
About Tooth Brushes 148
Accidents with Petroleum 183
Acids of Fruits 300
Acne and Blackheads 250
Adulterated Cocoa 265
Adulterated Food in Connecticut 252
Adulterated Honey 265
Adulterated Licorice 277
Adulterated Spices 313
Adulterated Wine 111
Adulteration 209, 226. 240, 252, 264, 277, 289, 299, 312, 325, 337, 347, 361
Adulteration of Beer 347
Adulteration of Food and Drugs 242
Adulteration of Paints and Oils 183
Adulteration of Pepper 325
Adulteration of Wines 277
Age and Vitality 18
Air Ships 41
Alaskan Exploration 38
Alum Baking Powders 211
Aluminum 51
American Beet Sugar 18
American Metals 78
American Public Health Association 250
Ananias Advertising 114
Ancient and Modern Gunpowder 66
Animal Talk 110
Antidote for Poisons 310
Anti-kamnia 360
Antiseptics, New 222
Arsenical Poisoning 223
Artificial Feeding of Infants 173, 185
Artificial Human Milk 159
Aromatic Disinfectants 289
A Semi-Centennial 327
Asparagus 172
As Seen by Newspaper Reporters 312
Athletics, Object Lessons in 226
Atlantic to Pacific 87, 98
Attar of Roses 112

Baked or Roasted 18
Bananas 126
Behavior of Antiseptics Toward Salivary Digestion 325
Benefits of Olive Oil 146
Bicycles and Throat Troubles 222
Bidoche, the Frenchman's Meat 346
Bird Surgery 222
Bock Beer 30
Bone, Boy's Composition on 229
Bone That Is Not Bone 229
Book Notices 257, 279
Book Reviews 304, 233, 316
Borax 63
Boy's Essay on Cats 306
Bran Eating 359
Bread 242
Breakfast Appetite 252
Bright Stories 4, 16, 29, 40, 53, 64, 76, 100, 112, 124, 136, 170

California Cork 67
Cakes for Breakfast and Tea 322
Canadian Adulterations 3
Care of the Hands 214
Care of Sealskin 194
Carpet Laying, Hints on 226
Carpets and Infection 15
Catarrh of the Upper Air Passages 238
Cats 306
Caustic Soda 229
Caviar 226
Cementation vs. Cremation 297
Chinese Cooks 28
Chlorinated Lime 197
Chlorinated Lime as a Disinfectant 214
Clams with Legs 87
Cleaning a Water Filter 312

Page
Cleaning Clothing 122
Cleanliness 198
Cocoa Preparations 289, 299
Cocoa Preparations and Their Adulterations 312
Cocoas 264
Cocoas and Chocolates 241, 253
Coldness of Space 279
Cold Process of Preserving 300
Coloring and Adulteration of Confectionery 241
Coloring Milk 278
Columbian Exposition 102
Comparative Pathology of the Caucasian and Negro 239
Concentrated Diet, Improper Use of 223
Convention of Press Clubs 78
Corn Pone 346
Correspondence 31
Cosmetics and Powders 148
Cottonseed Oil 358
Cry in Diagnosis 350
Cure for Vegetable Poisons 350
Curtains, to Clean 226
Cycling, Dangers of 350

Danger of Celluloid 199
Danger of Celluloids 164
Dangers of Malt Liquors to Nursing Women 336
Dansk 14
Day in Bed 288
Diamonds in Meteors 101
Dietetic Economies 172
Different Preserving Preparations 278
Dirty Bank Notes 298
Discovery of America 339, 351, 362
Disinfectant Mixtures 275
Disinfectants, the Best 298
Disinfecting Power of Lye 325
Domestic Dietetics, 5, 17, 31, 42, 55, 65, 77, 90, 101, 113, 126, 138
Don'ts for Grammarians 350
Do Peddlers Disseminate Disease? 289
Do You Carry a Potato or Buckeye? 329

Eating, Rules for 224
Editorials 1, 13, 25, 37, 49, 61, 73, 85, 97, 109, 121, 133, 145, 157, 169, 181, 193, 205, 221, 237, 249, 261, 273, 285, 297, 309, 321, 333, 345, 357
Education in Treating Nervous Girls 287
Effect of Tight Boots 54
Effects of Tobacco 313
Electrical Possibilities 110
Electrical Progress 134
Electricity 74
Electric Light 19
Electricity and Plant Life 26
Electricity for Cooking 159
Epidemics 173
Erratic Genius 138
Essay on Spices 290
Etiquette of Table 226
Evolution of a Newspaper Statement 56
Eyesight, Care of 225

Face Wrinkles 337
Facts for the Kitchen 255
Fads in Cures 14
Family Washing 254, 265
Famous Company 28
Fashion and Art 122
Feeding a Delicate Baby 223
Fined for Adulterating Coffee 346
Fireproofing of Tissues 49
Five Minutes' Exercise 263
Florida Fruits 134
Food and Health Exposition 43
Food Before Sleep 213
Food for Coffee Drinkers 337

Page
For and About Women 172
Found in Banana Bunches 351
Frost 6
Fruit Eating 325
Full of Fossils 27
Funeral Reforms 301

Getting Lean and Getting Fat 264
Gilt-Edge Butter Compound 337
Gingerbread and Snaps 215
Glue Not Gelatine 326
Gold Indelible Ink 50
Gold Leaf 164
Good Rules for Mistress 226
Good Whitewash 195

Halfway to the Moon 303
Headaches 262
Headache, Sponging out 223
Healing by Milk 311
Hellebore 74
Henbane for Celery Seed 277
High Meats 276
High Temperatures of the Body 160
Hints to Sleepers 225
Historical and Other Facts Regarding Vaccination 184, 196, 212
Home Doctor 276
Home of the Horse 339
Honey and its Adulterations 209, 240, 252
Honey Beverages 65
Household 172, 182, 194, 214, 226, 242, 254, 265, 276, 290, 301, 311, 322, 337, 346, 358
Household Poisons 301
House Plants 110
How Matches are Made 169
How the Pyramids Were Built 52
How to Care for Shoes 338
How to Judge the Quality of Condensed Milk 52
Hydrometer 314
Hydrophobia 185
Hygienic 174, 186, 197, 214, 225, 239, 251, 263, 276, 288, 297, 313, 324, 337, 348, 359
Hygienic Clothing 239, 263

Ice Calorimeters 30
Ice Cream 195
Iconoclast, The 5
Impure Air 66
Inequality of Bodily Temperature Productive of "Colds" 349
Ingrowing Nails, Treatment of 222
Insect Nuisances 77, 279
Interesting Gleanings in Insect Life 52

Japanese Dentistry 223
Jerks (The) 250

Kalsomining 226
Kid Gloves 27
Killing Cure 146
Kitchen Hints 79
Koumiss 349

Ladies' Kid Shoes 176
La Grippe 6, 138
Licorice 39
Lies, Chapter on 230
Lobsters 17
Looking-Glasses 16
Lost Key to a Cipher 266
Lynch Law 230

Macaroni 183
Magnetic Detection 77
Make More of Rice 172
Man's Eating 314
Marsala Wine 50
Meat-Eating and Meat-Eaters 303

Page
Medical 173, 183, 196, 212, 222, 238, 250, 261, 275, 287, 300, 310, 323, 334, 349
Medical Don'ts 223
Medical Hints 159
Medical Misinformation 222
Medical Witnesses 196
Medicated Skin Varnishes 213
Medicine in Fiction 334
Mental Power and Oxygen 160
Meteorological Physics 41
Microbe of Malaria 360
Microbicidal Antiseptics 275
Microbes as Chemists 324
Milk Business 300
Mine of Fossils 42
Mineral Wool 165
Minister's Mistake 290
Miscellaneous 174, 187, 199, 208, 255, 266, 278, 303, 314, 326, 339, 350
Mosaics 90
Mosquitoes, to Keep Off 224
Mulligatawny 338
Mussels 194

Nail and Glass Eating 228
Nature and Treatment of Stammering 54
Nature's Remedies 111
Needed Sleep 174
Neuralgia of the Toe 310
New Adulteration Law 290
New Books 187, 200
New Coins 137
New England Kitchen 86
New Help to Business 149
New Soluble Cocoa 361
New Stellar Motions 102
New War Agent 75
Nicknames of Noted Men 352
Note on Palen's Process (Vinegar) 265
Number of Stars 255
Nutritive Value of Various Foods 242

Oatmeal 322, 359
Odors 15
Old English 44
Oleomargarine 194
Oleomargarine in Maryland 253
Olive Oil 90
Oranges from Arizona 52
Our Beef Supply 205
Overcome by Illuminating Gas 261

Packers' Fight 199
People Who Lack Salt 195
Perfumes of Antiquity 62
Petroleum 326
Phagocytes 148
Photographing Colors 14
Pickles 135
Planetary Chain 28
Pleasure 123
Poisoning from Artificial Teeth Plates 239
Poisons 3
Position in Sleep 360
Possibilities of Science 231
Post Office Don'ts 218
Potatoes 159
Practical Education 278
Preserving the Eyesight 311
Prophylactic Influence of Tobacco 183
Ptomaines 123
Public Duty of Physicians 323
Pulse, The 276
Punishing Adulterators 195
Pure Food Exhibition 291

Rain Drops 99
Razors 54
Real Scotch Dishes 301
Red Wine 26

a 8 3574

Page
Report of Minnesota Dairy Commissioner 254
Reviews 291
Rice and Its Preparations 337
Sarah Bernhardt in Chinatown 114
Shopping by System 215
Side Dishes, Relishes, Etc 311
Sleep and Sleeplessness 64
Sleep as a Treatment for Invalids 185
Soap Plants 160
Soft Soap 323
Some Common Errors in Feeding Infants 51
Some Ways of Serving Sweetbreads 182
Spring Cleaning 182
Stale Candy 147
Stuttering and Stammering 323
Succulent Clam 207
Suggested by the Weather 175
Summer Specialties 224
"Sun" Cholera Cure 300
Syndicate Business 53

Take Time to Eat 196
Tea and Legislation 2
Teasing Children 228
Teetotalism Safe 164
The Danger of Ready-Made Clothing 324
The Hydrometer 327
The Marseilles Soap Industry 54
Tin Salts in Ginger Bread 299
Tobacco, Its Effects 313
Tomatoes and Cancer 310
Tonics 310
Training Common Cats 306
Treatment of Sea Sickness 335
Trees Struck by Lightning 51
Typhoid and Salads 349

Undiscovered Universe 39
Unfermented Beers 276
Use and Abuse of Soap 251
Use More Soap 336

Vaccination Against Snake Poison 360
Vegetable Digestive Ferment 360
Ventilation of Churches 187
Vinegar Adulteration 265

Warning Against Kissing Animals 240
Warning to Public 300
Washing 302, 311
Water-Brash From Oatmeal 335
Water Supply and Public Health 186, 198
What is Electricity? 147
What the Baby Wanted 225
What to Do in Emergency Cases 287
Will and Shall, Use of 352
Wise Sayings 207
Wise Sayings Well Said 243
Worms in Meat 348

MISCELLANEOUS.

OLD AND NEW.

THE DAYS OF OUR FOREFATHERS AND THE PRESENT.

The two first breaks with savage life were kindling a fire and making flint tools, but up to fifty years ago we had no better way of making a fire than knocking flints together in tinder or tow. Coals were the all important item of a household—not black cannel, but live ash or oak coals—and it was a disaster, indeed, when the fire was lost over night.

George Washington never ate canned peaches, and King George never rode in a wagon. There was not a Happy Thought range in the world nor a railroad. John Jacob Astor had not wealth enough to buy a gallon of kerosene oil, much less to light his house with electricity. It took six months to get word from a branch house in India or Canton, instead of six minutes.

The average of human life has steadily increased, and is now something over forty; while cholera, plague, small pox and typhoid fevers have been hunted down to their causes, and will be ultimately hunted out of civilization. Hydrophobia, the last of our incurable horrors, is no longer in the list of mysteries. The "mysterious dispensations of Providence" turn out to be for the most part the pests of our filth and negligence.

Progress is happily marked in nothing so much as the household. Formerly there was nothing grand but cathedrals and palaces; now the simple houses of the people are full of art, luxury and comfort. The poor man's spring bed and mattress are superior to the state couch of Louis XVI. His furniture, though cheap, is artistic and elegant. His walls are decorated with paper that in the last century would have cost a fortune—it costs him fifty cents a roll. He eats bananas from the tropics at ten cents a dozen, and oranges are almost as plentiful on his table as apples. Baseburners and furnaces keep him warm. Books, at the price of beefsteaks, bring him in contact with the world's best thoughts. Ten square yards of news, printed in clear type, come to his door each morning for a nickel. The *Globe-Democrat* buys up at enormous cost the wit and wisdom of the world, and distributes it to 100,000 households at a cost within the reach of the common laborer. A manuscript that costs $5,000 is reproduced, and a copy of it is sent to anyone, free of postage, for ten cents.

One hundred years ago Franklin's door key unlocked the secrets of the clouds; today our houses and streets are illuminated by the force that then was untamed, and only known to be feared.

Study the dining room of an average sort in an average home. The table is of ash, or oak or walnut, neatly carved. The linen is the result of a century of art applied to industries. The food is beef from Colorado; the fruits come from Mexico, the Indies and the Pacific. In winter he eats fresh vegetables and fruits. Steam drags Florida oranges to the Columbia river and Georgia melons to Maine.

But our politics are scandalous! Are they? Go back to Jefferson's day and read a few pages in which Aaron Burr and the not immaculate Hamilton figure. The men in English, French or Italian history of the sixteenth, seventeenth and eighteenth centuries, who in public life were not, at some period of their career, in treasonable correspondence, were the exception. English kings accepted pay of France for dealing criminally by their own realm. Bribes are indeed too common in a republic, but is there a hamlet in America where a candidate for office would dare to set a table in the streets and publicly buy votes. Yet such was the custom in England in the last century. In political morals we are not losing but gaining. Not only are the means used less corrupt; the candidates must stand a caustic moral test. Moral questions are political questions, and they will never be less so.

How is it socially? If you read a few pages out of any history that belongs to the three preceding centuries you will exult in the good times now. Kings' courts were less decent than the houses of courtesans in our cities; and the people copied their rulers. The history of the church was hardly cleaner.

BOTANICAL FREAKS.

A whole book, and one of large size, too, might be written on the vegetable wonders of the world. Even the Malayan savages know that it is possible for a plant or a flower to be a real oddity, for botanists tell us that they have an extraordinary flower which is known to them by a name which signifies "Wonder-Wonder." It is a flower and a flower only, having neither leaves, stem or roots. It is a globular parasite, about three feet across, and bursts into a dream of loveliness from the surface of decaying logs or stumps; the "wonder-wonder" is exceeded in size by only one other species of known flower, the Victoria Regina of Ceylon, which is six feet across.

India, the home of serpents, has what is known as the "vegetable boa constrictor," a species of climber which twines about great trees so tightly as to strangle them to death.

"The butcher plant," one of the carniverous vegetables, is found only in the near vicinity of Wilmington, N. C.

ELECTRIC TROLLEY WIRES.

The *Scientific American* answers a correspondent's question: What is the chief objection to the electric trolley wires, about which so much complaint is made in certain quarters? It seems to me the electric car is a wonderful advantage to the public. A. There is no doubt the electric car is a great improvement and highly advantageous wherever introduced. The chief objection is that the trolley wire is a naked wire, along which a streak of lightning is constantly passing. If the wire falls or other wires fall upon it, serious results may follow, and in some cases have followed. There are undoubtedly real dangers attending the trolley system, just as there are in the use of steamboats, locomotives, horse cars, gunpowder, gas pipes, kerosene lamps, etc. But when proper precautions are observed all these devices are reasonably safe. The trolley dangers are to a great extent supposititious.

METHODS BY WHICH OBELISKS WERE MOVED.

The obelisks of the Pharaohs are made of red granite called syenite. In the quarries at Syene may yet be seen an unfinished obelisk, still adhering to the native rock, with traces of workmen's tools so clearly seen on its surface that one might suppose they had been suddenly called away and intended soon to return and finish their work.

This unfinished obelisk, says the Rev. J. King, in his "Cleopatra's Needle," shows the mode in which the ancients separated these immense monoliths from the native rock. In a sharply cut groove marking the boundary of the stone are holes evidently designed for wooden wedges. After these had been firmly driven into the holes, the groove was filled with water. The wedges gradually absorbing the water, swelled and cracked the granite throughout the length of the groove. The block, once detached from the rock was pushed forward upon rollers made of the stems of palm trees, from the quarries to the edge of the Nile, where it was surrounded by a large timber raft.

It lay by the river side until the next inundation of the Nile, when the rising waters floated the raft and conveyed the obelisk down the stream to the city where it was to be set up. Thousands of willing hands pushed it on rollers up an inclined plane to the front of the temple where it was designed to stand. The pedestal had previously been placed in position, and a firm causeway of sand covered with planks led to the top of it. Then by means of rollers, levers and ropes made of the date palm, the obelisk was gradually hoisted into an upright position.

◆

Paint on Wood.—Oil paint may be removed from boards with a preparation of fuller's earth mixed in boiling water with one ounce of soft soap and one ounce or soda or pearlash. After using let it dry and then scour with soap and water. If the paint is very old a little powdered lime is a help and the liquid should be left on the paint for some time to soak.

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CONTENTS.

Bright Stories
  The Prodigal Uncle 4
Canadian Adulterations 3
Domestic Dietetics 5
Editorials 1
  Steam Sleighing; Woman at the Chicago Fair; Theological Teaching.
Frost 6
Iconoclast, The 5
La Grippe 6
Poisons 3
Tea and Legislation 2

STEAM SLEIGHING.

A California correspondent informs us that a young man of that State, a resident of Truckee, named Lane, thinks he has solved the problem of Arctic travel, and brought the North Pole within the pale of civilization. The machine he has invented is a sort of steam motor sleigh. Mr. Lane has been using the first machine which he constructed—a small one run by hand-power—for snow and ice travel among the mountains during the last two years with entire success. He is now having made at the iron works a large one to be run by steam-power. If no Arctic explorer takes advantage of this new means of reaching the North Pole by express, Mr. Lane will use it for hauling passengers and towing logs and carrying freight in the high Sierras, and will have it on hand for transferring passengers over snow blockades on the Central Pacific. The sleigh bed is supported by two double twelve-foot runners. Each of these double runners is twenty-four inches wide, with a groove fourteen inches wide running through the centre. At right angles to the runners, in each end of the sleigh box, are two four-foot cylinders. A rubber belt, on which are set twenty-four V-shaped shovels, connects each pair of cylinders, from front to rear, in the groove of each double runner. The apex of the shovels points downward or upward as the belt rolls around the cylinders, and when on the under side presses into the snow or ice. If the snow is very hard, or the sleigh is traveling over ice, only the tips of the shovels will penetrate, and the machine will glide along as smoothly as a toboggan. The engine of six horse-power, is placed in the rear end of the vehicle, and the whole machine weighs only 1,800 pounds. Screws in the rear drums gauge the depth of the "bite" of the shovels. The machine needs no roads, can climb steep grades, and go anywhere, over snow or ice, where the way is not obstructed by thick timber or perpendicular cliffs. With his hand machine Mr. Lane has been able to make ten miles an hour over level surfaces. With his new steam-power sleigh he feels positive that he can travel at least twenty or twenty-five miles an hour.

WOMAN AT THE CHICAGO FAIR.

Among the numerous circulars that are constantly appearing in relation to the Chicago Columbian Exposition of 1893, one of special significance to the female sex has just been issued by the Board of Lady Managers. The substance of the document is as follows: "The Board of Lady Managers invites the women of all countries to participate in this great exhibit of women's work, to the end that it may not only be national but universal, and that all may profit by a free comparison of the methods, agencies, and results. It is of the first importance that such a representative collection be secured from every country as will give an adequate idea of the extent and value of what is being done by women in the arts, sciences, and industries. We will aim to show the bread winners who are fighting the battle of life the new avenues of employment that are constantly being opened to women, and in which of these their work will be of the most distinct value, by reason of their natural adaptability, sensitive artistic temperaments, and individual tastes; what education will best enable them to enjoy the wider opportunities awaiting them, and make their work of the greatest worth, not only to themselves but to the world. The Board of Lady Managers has decided that at the coming Exposition it will not attempt to separate the exhibit of women's work from that of men, for the reason that as women are working side by side with men in all the factories of the world, it would be practically impossible, in most cases, to divide the finished result of their combined work; nor would women be satisfied with prizes unless they were awarded without distinction as to sex, and as the result of fair competition with the best work shown. They are striving for excellence and desire recognition only for demonstrated merit. In order, however, that the enormous amount of work being done by women may be appreciated, a tabulated statement will be procured and shown with every exhibit, stating the proportion of women's work that enters into it. The application blanks now being sent out to manufacturers contain this inquiry. The Board has been granted by Act of Congress the great and unusual privilege of appointing members of each jury to award prizes for articles into which women's work enters. The number of women on each jury will be proportionate to the amount of work done by women in the corresponding department of classification. Besides the extensive exhibit in the general Exposition buildings, women will have another opportunity of displaying work of superior excellence, in a very advantageous way, in the Woman's Building, over which the Board of Lady Managers will exercise complete control. It is intended that this building and all its contents shall be the inspiration of women's genius. There will be an opportunity given to those desiring it to incorporate intended exhibits in the construction of the building, in a manner both practical and artistic—such, for instance, as carved wainscoting and balustrades for the staircases, open carved screens, ornamental iron and brass, hardware, decorative tapestries, and panels, etc. Any art associations or individual women who wish to place such decorations in the Woman's Building are requested to notify the Secretary of the Board of Lady Managers as soon as possible, in order that arrangements may be made, the details of dimensions sent to them in ample time, and space reserved for the insertion of their work. For the benefit of artisans and designers there will be a loan collection."

THEOLOGICAL TEACHING.

Since the trial of the Rev. Dr. Charles A. Briggs for heresy and the failure of the Presbyterian Church thus far to convict him, the question that has risen in the public mind is, "Since Dr. Briggs is one of the most learned and successful teachers of theology in any of our Theological Seminaries, what are his ideas of the scope of a theological education?" Dr. Briggs himself answers this question in the January number of *The Forum*. After showing the history of theological teaching in the United States up to recent date, he points out the fact that theological training has been kept apart from training in other sciences, so that our preachers have to a degree lost contact with the students of other great branches of study. More than this, while men devote considerable time and attention to every other branch of learning without the idea of making it their life work, and thus get the benefits of a general culture, in theology it has not been so; for no one in America, as a rule, engages in the study of theology except as a direct preparation for ministerial work. Dr. Briggs's conception of theological teaching

READ PAGE 10.

is that theology is one great branch of human learning, which is as well worthy of serious study as any other branch, and, if pursued in a rational way and in proper co-ordination with other branches of learning, would do more to develop a proper co-ordination of all important branches of study than has yet been made in our American teaching. The article is a notable one because it is a formulation of the efforts that Dr. Briggs and a great many other progressive theologians are making to revolutionize this branch of study in the United States.

TEA AND LEGISLATION.

BY EDWARD BEDLOE, M. D., U. S. CONSUL AT AMOY.

No one can visit the East without having his eyes opened to the many tricks played at home by the guileless green grocer upon the unsuspecting housewife. The Hyson, "dirt cheap at 50 cents a pound," is put on board the steamers at a total cost of 12 cents.

The "English Breakfast," "given away at a dollar per pound," is sold in the open market at 22 cents. The magnificent Formosa Oolong, the king of all the black teas, is sold by the merchant here at 25 and 30 cents and resold in Chicago at three times those figures. To whom goes the profit? It is not out here. Competition is close and the margin of profit small. Many cargoes involve less to the exporter. But no matter how low prices fall in the wholesale market, the retail, like the laws of the Medes and Persians, changes not.

The second thought that occurs to the visitor in China is, who mixes and blends the teas in the stores at home? No matter what the name may be, each variety home is generally a mixture of various kinds, Chinese and Japanese, Chinese and Ceylon, Formosa and Amoy, Formosa and Foo-Chow, Formosa and Hankow.

Here, in the port of Amoy, from which are shipped the growths of the mainland and the neighboring island of Formosa, each half-chest is sent out full of the pure leaf. In this condition every cargo reaches New York, Boston, Philadelphia, Chicago and San Francisco. But when it reaches the consumer it is no longer pure, but mixed. Where and by whom is the mixture made? Who demands it? Does the American public deliberately ask that the pure Formosa leaf be weakened and spoiled by the poorer growths and often the rubbish of other districts and other lands? Or has its taste become perverted so as to enjoy a decoction, which possesses no aroma, an unpleasant flavor and enough tannin and gallic acid to pucker the mouth and alimentary canal into air-tight compartments. Out here it is difficult to discover where the evil lies. We know that there are establishments in the great American cities where damaged and stale tea are recolored and refired, and where, it is said, spent leaves are converted at a slight cost into things of beauty and joy. Are these the thoughtful gentlemen who blend, reduce and improve the fragrant Formosa shrub?

Third, At every point in his reading he meets such advertisements as these:

"Drink Japan tea. It is twice as strong and thrice as cheap as Chinese!"

"Buy Indian tea. Three times as powerful as Chinese tea!"

"Try Assam tea. Raised by Britons and not Coolies!"

Use Ceylon Pe Koe. Four times stronger than Chinese, therefore four times cheaper!"

What truth is there in these assertions? As a matter of chemistry, physiology and gastronomic taste, China tea has the largest amount of theine and essential oils, and of the Chinese varieties the foremost place is occupied by the Formosa. It is for the benignant effect upon the nerves of the former and the pleasure of the perfume of the latter that we drink the cup that cheers but not inebriates.

The other countries, in this regard, follow the Celestial Empire in about this order, Assam, Ceylon, Japan and India.

As a matter of fact, all teas contain an unhealthful principle. We call it tannin for convenience, but, in reality, it consists of tannic acid, gallic acid and other powerful astringents. China teas contain the least, Indian the most. The other lands lie between these extremes. A little tannic does but little harm, and in many morbid conditions of the stomach it is of positive benefit. An appreciable quantity injures the stomach, intestines and nerves. The statement, therefore, that one tea is four times stronger than another means four times stronger in tannic, and, therefore, sixteen times more pernicious to human health.

Such advertisements as those quoted are really badges of inferiority. If true, the things they recommend as good are good to be avoided. But, in view of the facts so briefly recited, would it not seem that legislation in the matter was very necessary? Would it not be well for the public to have a law passed similar to those in force in many European nations, requiring manufacturers, dealers and tradesmen to print and post a notice upon all goods stating whether they are pure or mixed, and, if the latter, mixed with what ingredients; a second law, prohibiting the mixing of second-hand, chemically-prepared rubbish with tea of any sort; a third, whereby the chemists employed in the appraiser's department of the Custom House should regularly analyze and publish the composition of all teas entering the market, with a special reference to the theine, essential oils, tannin and impurities. Something of this nature should be done and done immediately. I make the suggestion in the hope that wiser and more experienced minds may devise some system for the amelioration of the present condition of affairs and the protection of both the consumer and tea merchant.

MODERN SCIENCE.

ALL PHENOMENA ATTRIBUTABLE TO THAT OF MOTION.

Turning the leaves of old text-books on physics—say of the period of the beginning of this century—we find mentioned in them peculiar substances described as "imponderable." Among the "imponderables" were classed the heat essence, the electric and magnetic fluids, and the light essence. If, for example, one body had a higher temperature than another, the explanation, in the opinion of our teacher, lay in the fact that it possessed more of the heat essence. None of the learned men of those days had found it possible to demonstrate that the "imponderables" had weight and similar properties. It was, therefore, necessary to draw the conclusion, singularly interesting at this day, that there was substances without weight. It is clear enough now that the one term should have suggested exclusion of the other. As it is to-day, it has often been in the past; a few men, unobserved by society at large, silently develope an idea until the time is ripe for its application. At the beginning of the modern period the conception took root that it was the business of the natural philosopher to have no other aim than to describe all the phenomena of the physical world in the simplest possible manner, and that to do so was to exercise all the possibilities of human understanding. This conception first had perfectly clear recognition in the brain of the great Italian martyr, Galileo. To be sure, it was not on that account that his fame was spread far beyond the borders of his beautiful country. He was honored and feared by his contemporaries as the great explorer of the heavens, because he was the first to make use of the telescope, and as the powerful defender of the Copernican theory. But we remember Galileo as the founder of modern physics. He was the first to formulate the laws of falling bodies, of the pendulum, of the inclined plane, etc., and, by such achievements, he dashed to pieces the walls that marked the narrow boundaries of Artistotelian wisdom. A few others of Galileo's time, with his disciples, perfected the science of the motion of bodies, the so-called science of mechanics. The great Newton succeeded in proving that the laws of motion are not peculiar to the earth, and that the same powers that govern the objects moved by the hand are in operation among the planets. Even the physics of the "imponderables" was foreindicated by the impulse that Galileo gave to knowledge. The Hollandish natural philosopher, Huygens, undertook to modify the old conception of light. He maintained that every space and body of the material world is penetrated and surrounded by an exceedingly fine substance, which he called "world-ether," and that every undulation of the ether that reaches the retina of the eye is a wave of what we call light. These opinions constituted the elements of the undulatory theory of light, which, after the most minute researches, was mathematically and experimentally demonstrated to be the correct theory by English and French investigators in the early part of the present century. The science of modern optics has had a process of development akin to that of the older sister-science of astronomy, and the one, to the same extent as the other, rests on the basis of absolute demonstration—if it is humanly possible to put either science on such a basis. Like astronomy, it has further revelations to make, and the accuracy of predictions has been justified up to this time by the results of experiments. The light-ray has been as a blazing torch upon the path of knowledge, and has scattered the teachers of darkness who were wont to confuse men's minds in the search for the truths of nature. The beams that come from the sun and the fixed stars bring us not only light but heat. It was, therefore, a logical deduction that heat is also a form of motion. But the battle for this conclusion was an arduous one, and the advocates of the theory that heat is substance were deaf to the new doctrine. Not until Count Rumford, of the English military service, showed that in boring the muzzles of cannon cold water was heated to the boiling point, did the belief that heat is motion—means for experimentally proving this belief having been still lacking begin to fasten itself in the minds of the unbiased. Then the German physician, Robert Mayer, and the English technologist, Joule, succeeded in bringing forward strong evidence of the identity of heat and motion, and showed that a certain amount of heat corresponds to a certain amount of work. Finally, Herman von Helmholtz was able to formally set forth and establish what had been philosophically argued, that heat, light, and mechanical work, as well as the work-power of electricity and magnitism, are convertible terms; that no power can be destroyed and no power can be procreative, but that everywhere in the wide realm of space there goes on conversion of power. This truth is expressed by the term, "the law of the preservation of energy," and further investigations are being prosecuted by the physicists of to-day. But along with clearer understanding there went a haunting credulity for the mystical lore about electricity and magnetism, and in respect to both electricity and magnetism the peculiar old idea continued to be the prevailing one. Although England's very great experimentalist, Faraday, built up a new structure of information touching the properties of electricity, by means of exceedingly clever operations, the unusual form in which he submitted to his contemporaries the results of his work clouded their perceptions. The most trusted of his pupils, the ingenious Clark Maxwell, presented, in the seventies, the remarkable ideas and conclusions of his master in mathematical guise, and thus made them more intelligible. Since then electricity has been regarded as one of the undulatory

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he experiments in progress, upon which reports
fter, is to be found on pp. 326 and 327 of this bulletin.

in full and postoffice, if you write me.

W. L. PILLSBURY,
Secretary.

42

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8

1892

manifestations of the ether: or, to speak more accurately, light itself is electricity. And now through the efforts of a young German investigator, Prof. Heinrich Hertz, of Bonn, the undulatory motion of electricity through space is actually demonstrated. He has developed electric rays, and shown how they are broken, reflected, and polarized. Thus it provided experimental proof that light is electricity and that the eye is an electric organ. Hertz's experiments have been repeated all over the world, and found to be correct; and once more there is opened a limitless field for the endeavors of gifted men. And so it is seen that all the observed phenomena of the universe are attributable to phenomena of motion in the strange substance that fills all space. The task before the physicists at the close of this century is the solution of the great question, What are the properties of this ether, and what is ether?—*Ueber Land und Meer.*

POISONS.

WHAT THEY ARE AND HOW THEY OPERATE ON THE SYSTEM.

An exact definition of the word poison is by no means easy. There is no legal definition of what constitutes a poison, and the definition usually proposed include either too much or too little. Generally speaking, poison may be said to be a substance having an inherent deleterious property, which when taken into the system in any manner will take life and injure health, irrespective of mechanical means or direct thermal changes. Poisons may exert a two-fold action, they may be either local or remote, or both. Local action of a poison is usually one of corrosion, inflammation or a direct effect upon the sensory or motor nerves. The ordinary action of a poison is greatly modified by the state or chemical combination it is in, by the part to which it is applied and by the condition of the patient. Thus for example all baryium salts, are poisonous except the quite insoluble sulphate. The simple cyanides and many double cyanides, are highly poisonous; but yellow prussiate of potash, which is a double cyanide of iron and potassium is almost without action upon the system. The part of the system to which a poison is applied owing to the varying rapidity with which absorption takes place greatly affects the activity of a poison. For instance curare, an arrow poison, may be swallowed in considerable quantity without appreciable results, whilst a minute quantity of the same substance introduced into a wound is speedily fatal. Poisoning may be acute or chronic. Poisons are generally divided into corrosive, irritant, neurotic and gaseous poisons. The typical member of the corrosive class is corrosive sublimate, the soluble chloride of mercury. In this class are included also the concentrated mineral acids (sulphuric, nitric and hydrochloric); oxalic acid; the alkalis (potash, soda and ammonia) and their carbonates; acid, alkaline and corrosive salts of the metals (such as bisulphate of potash, alum, butter of antimony, and nitrate of silver); also carbolic acid. Irritant poisons are of two classes—metallic irritants and vegetable and animal irritants. An irritant usually produces an inflammation of the part to which it is applied. Arsenic is the most important of the metallic irritants. Other irritants are the moderately diluted acids, many metallic salts, such as those of antimony, lead, copper, zinc and chromium. Gamboge, aloes, colocynth and croton oil are good examples of vegetable irritants; and cantharides (Spanish flies) of animal irritants. Decomposing animal and vegetable matters or when infested with certain organisms known as bacteria, may produce violent irritant symptoms. The symptoms produced by irritant poisons are usually more slow in their development than where a corrosive poison has acted. Arsenic is a specific irritant poison. Almost all the compounds of this metal are poisonous. The term arsenic is most commonly applied, not to the metal itself, but to its lower oxide, arsenious oxide, which is also known as white arsenic. Another of the irritant poisons is lead. The salts of lead, especially the acetate, sugar of lead, are poisons of no great activity, chrome yellow, or lead chromate, is a powerful irritant poison. All chromates are indeed, irritant poisons. The soluble salts of copper, such as blue vitriol (the sulphate) and verdigris (subcarbonate and subacetate) are emetic and irritant salts. Zinc salts and barium salts, except the quite insoluble barium sulphate, are irritant poisons. Chromates, *e. g.*, bichromate of potash, are violent irritants. Phosphorus has two chief forms, the yellow or ordinary and the red or amorphous, the former only is poisonous. The vegetable irritants produce drastic purgative effects. Cantharides (Spanish flies) the only irritant poison of animal origin is seldom heard of as having been taken internally.

It is impossible at present to attempt a systematic division of the neurotic poisons, as they embrace poisons so widely different in their action. Prussic or hydrocyanic acid, is one of the best known poisons of this class and a very deadly one. In the pure state, it is said to kill with lightning like rapidity. It is met with in commerce only in the dilute state. Other soluble cyanides, especially cyanide of potassium, are equally poisonous. Opium is another neurotic poison, but is too well known to need further description. Strychnine and all strychnine producing plants all act in the same manner, being highly poisonous, and causing death after spasms of a severe character. Aconite is perhaps the most deadly of all poisons. Belladonna is the last of this class we shall mention. Of the gaseous poisons, the effects are varied, some of them acting as irritants, while others have a specific effect, apparently in consequence of their forming chemical compounds with the red pigment of the blood, and thus destroying its capability of acting as a carrier of oxygen. Chlorine and bromine act as powerful irritants when inhaled, they produce inflammation of the respiratory mucous membrane which may prove fatal. Hydrochloric or muriatic acid and hydrofluoric or fluoric acid gases are irritating and destructive to life. They are emitted in many processes of manufacture. Sulphurous acid gas, given off by burning sulphur is most suffocating and irritating. Its inhalation even in a highly diluted state may produce death from spasmodic closing of the glottis. Nitrous vapors or gaseous oxides of nitrogen (except nitrous oxide) are given off from galvanic batteries excited by nitric acid, also in other processes, are exceedingly dangerous, setting up a fatal inflammation of the lungs. Ammonia gas is highly irritant, but does not often prove fatal. Carbonic acid gas is heavier than atmospheric air, is totally irrespirable when pure, and is fatal when present in large quantities in respired air. It is given off from burning fuel, accumulates in pits and wells as choke damp and constitutes the deadly after damp of coal mines. It is also formed during alcoholic fermentation, and hence accumulates in partially filled vats in which fermented liquors are stored. When it is breathed in a concentrated state, death is almost instantaneous. Carbonic oxide gas is given off by burning charcoal and other forms of fuel mixed with carbonic acid. An atmosphere containing less than one per cent. of carbonic oxide would doubtless be fatal if breathed for many minutes. Coal gas acts as an asphyxiant and narcotic, and its effects are chiefly due to carbonic oxide gas which is one of its principal constituents. Sulphuretted hydrogen is highly poisonous by whatever channel it gains access to the body. Of the anæsthetics, nitrous oxide or laughing gas and the gases of vapors of other anæsthetic substances, such as chloroform produce death by asphyxia and perhaps otherwise. The vapors of the natural hydrocarbons known as benzoline, petroleum, etc., are poisonous when inhaled for lengthened periods. No attempt at describing antidotes or treatment would be of any service, so none is made.

CANADIAN ADULTERATION.

A BILL TO PREVENT FRAUDULENT MARKING.

The Dominion Parliament last summer passed a bill for "The Restraint of Fraudulent Marking," which became a law August 28, 1891. The Act as passed refers particularly to white lead, but by section 3 the Governor in Council is authorized to add any articles to the schedule of the Act and determine the standard of purity therefor. The following is a full text of the Act:

Act in Restraint of Fraudulent Marking.

Her Majesty by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows:

1. No person shall mark, brand or label any article or package containing any article mentioned in the first column of the schedule of this Act, with the word "pure," "genuine" or any word equivalent thereto, or sell or expose for sale any such article or package so marked, branded, stamped or labelled, unless such article or the contents of such package are pure within the meaning of the second column of the said schedule.

2. Every person who violates any of the provisions of section 1 of this Act shall, for every violation, be liable to a penalty of one hundred dollars, a moiety of which penalty shall belong to the prosecutor, and another moiety thereof shall belong to the Crown.

The penalty hereby imposed may be recovered and enforced in the manner provided by "The Inland Revenue Act," with respect to penalties incurred under it, and as if imposed by it.

3. The Governor in Council may add any articles to the schedule to this Act, and determine the standard of purity therefor, and may remove any article from the said schedule; and the Order in Council in that behalf shall be published in four successive issues of the *Canada Gazette*, after which it shall have like effect as if such articles had been included in the said original schedule.

4. Any order in Council made under the provisions of this section shall have effect only until the end of the next succeeding session of Parliament.

5. The Minister of Inland Revenue may order any officer of Inland Revenue or of Customs to obtain samples of any of the articles mentioned in said schedule, but in such case the manner of obtaining such samples shall be that prescribed in respect of the obtaining of samples under the "Act respecting the adulteration of Food, Drugs and Agricultural Fertilizers," and the provisions of sections six to thirteen of the said Act, both inclusive, shall, so far as they are applicable and are not inconsistent with this Act, be held to have force and effect in relation to such articles as though such articles were articles of food within the meaning of the said Act.

Comparative Liars.—There used to be a saying current in Lincoln's Inn years ago of a Judge who recognized three degrees in liars: the liar, simple, the d——d liar, and the expert witness. The point lies in the fact that expert witnesses are allowed to give evidence as to what is their opinion, and hence are out of the reach of an indictment for perjury, which always hangs over the head of the ordinary witness, who can testify to facts only. There is another version which is of interest, namely, the three degree of liars, which are said to be the liar, the d——d liar, and the mining engineer.—*Notes and Queries.*

The Last of the Waterloo Soldiers.—The last of the British officers who fought under Wellington at Waterloo died at Southampton in October. Lieut.-Col. William Hewett, late of the Rifle Brigade, who was born at Parkhurst, in the Isle of Wight, on the 2d July, 1795, spent the declining years of his life in Southampton, ministered to by his daughter. A question arose after the death of Col. Wichcote as to how many survivors of the great epoch-making battle remained, and it was ascertained beyond the possibility of a doubt that Col. Hewett was the only one. In June, 1815, Col. Hewett was already a Captain, and the late Lord Albemarle served under him as a subaltern.

BRIGHT STORIES.

THE PRODIGAL UNCLE.

SHOWING THE DIFFERENCE BETWEEN HIM AND THE PRODIGAL SON.

My family, at the time when this story begins, lived in Havre. They were not rich, and were always hard up. Father worked in an office, and the wages were not the hightest.

I had two sisters.

My mother fretted under our poverty, and she often addressed harsh words to my father—perfidious, veiled reproaches. The expression of the poor man's face always distressed me; he passed his hand over it as if to wipe away a perspiration that was not there, and said nothing. I felt his powerless sadness.

My parents economized with everything; they often ate dinners unfit to be served; they brought provisions at the lowest prices, and yet, even at that, they had often to ask for credit.

My sisters made their own dressers, and had long discussions about the price of a kind of lace, costing fifteen centimes a yard.

I well remember many scenes about lost buttons and torn trousers.

But every Sunday we took a walk to the docks in great style, My father, in a long coat, a high hat, and wearing gloves, offered his arm to my mother, who was dressed as gayly as a ship on a holiday. My sisters, always the first to be ready, awaited the signal of departure; but at the last moment, a forgotten spot would be discovered on the coat of *paterfamilias*, and it had to be quickly effaced with a rag dipped in benzine. My father, keeping his hat on his head, waited in his shirt-sleeves until the operation was done, while my mother, having adjusted her glasses—she was near-sighted—hurriedly put on her gloves.

Finally we started with great ceremony, my sisters, with linked arms, going before. They had attained a marriageable age, and made quite a respectable appearance in the city.

I walked at the left of my mother, my father at the right. And I remember the pompous air of my poor parents in these Sunday Excursions, the rigidity of their features, the severity of their aspect. They advanced with a grave step, as if an affair of the greatest importance depended upon their carriage.

And every Sunday, seeing the great vessels that had returned from unknown distant countries, my father invariably repeated the same words:

"Ah! if Jules were on one of these, what a surprise it woud be!"

My Uncle Jules, my father's brother, was the only hope of the family, after having been its terror.

I did not speak of him, but since my infancy my thoughts were with him, and his first culpable act was always present in my mind. I knew all the details of his life up to the day of his departure for America. He had, it appears, misconducted himself: that is to say, he had squandered some money, which is a great crime if it happens in poor families. A rich man who amuses himself is simply guilty of follies. He is called "nobody's enemy but his own." With the poor and needy, a man who forces his parents to curtail their capital or income, becomes a rascal, a knave.

In short, Uncle Jules had considerably lessened the inheritance of my father, after spending his own share to the last sou. Then he had sailed for America, as they afterward learned, on board a merchantman bound for New York.

After having been there some time, my Uncle Jules established himself as a merchant; and he soon wrote that he was saving a little money, and hoped that he would be enabled shortly to indemnify my father for the losses he had caused him.

This letter created a profound emotion in the family. Jules, instead of being a worthless fellow, they said, was an honest man, a tender-hearted man, a true Davranche, upright as all the Davranches.

In a second letter, sent two years later, he said:

MY DEAR PHILLIPE: I write you so that you need have no fears regarding my health, which is all that can be desired. My business also goes well. I start to-morrow on a long voyage to South America; several years may pass, perhaps, before you will hear from me. But if I do not write, do not be alarmed. I shall return to Havre with a fair fortune. I hope it will not take too long, and then we shall all be happy.

This letter became the gospel of the family. It was read at every opportunity, it was shown to every one.

During ten years, perhaps, we did not hear from Uncle Jules; but, as the time lengthened, my father's hopes also grew in proportion, and my mother often said:

"When Jules is here, our situation will be entirely changed."

And every Sunday, when regarding the huge black masses of smoke on the horizon that ascended to the sky like an immense serpent, my father repeated his eternal phrase:

"Ah, if Jules were on one of these, what a surprise it would be!"

And then he rubbed his eyes briskly with a handkerchief.

They made a thousand projects when the return was assured; they would buy, with uncle's money, a small house in the country. I do not know but that my father had already commenced negotiations in reference to that affair.

The eldest of my sisters was twenty-eight years old, the youngest twenty-six. They had never married, which was a cause of great sorrow to all. A wooer finally presented himself for my youngest sister. He was a clerk, not wealthy, but honorable.

I have always had the conviction that the letter of my Uncle Jules, shown again one evening, had ended the hesitation and strengthened the resolution of this young man.

He was accepted eagerly, and it was decided that after the wedding the whole family should take a little trip to Jersey.

Jersey is the ideal of a journey for poor people. It is not far; one traverses the sea in a packet and finds one's self in a strange land, an island belonging to the English. Thus a Frenchman, after two hours' sailing, can see his neighbors and can study their strange manners and deplorable circumstances. This trip to Jersey occupied all our thoughts, our entire attention, and we dreamed of it constantly.

Finally we started. I rememher it as if it happened yesterday; the smoke blowing over the dock; my father, very much perturbed, watching the transporting of our luggage; my mother, also disquited, had taken the arm of my unmarried sister, who appeared lost since the other sister had gone from her, like a chicken sitting alone in its coop; and behind us came the young married pair, always lagging, which compelled me to turn my head often.

The whistle sounded. We went on board, and the ship, leaving its dock, glided out upon a sea as smooth as glass. We watched the receding shores, happy and joyous, a feeling doubtless experienced by all who have traveled.

My father wore his long coat, from which all the spots had been washed with benzine, and consequently he strongly suggested that valuable cleansing agent, and recalled to my mind our Sunday outings.

Suddenly he espied two elegant ladies, to whom two gentlemen were offering oysters. An old ragged seaman opened the bivalves with one blow of a knife and passed them to the gentlemen, who immediately carried them to the ladies, who ate them in a most genteel maner, holding the shells in a cambric handkerchiefs, and conveying them to their mouths without dropping any juice or staining their toilets. Then they drank the liquid with a pretty, rapid movement, and threw the shells into the sea.

Undoubtedly my father was captivated by this distinguished act of eating oysters on a vessel while it was under sail. He thought it was good taste, refined, superior, and approached my mother and sisters, saying:

"What would you say if I should offer you some oysters?"

My mother hesitated on account of the expense; but my sisters accepted immediately.

My mother said, in a querulous tone:

"I am afraid they will not agree with me. Give some to the children, but not many, as the oysters will make them sick." Then turning toward me, she remarked: "As to Joseph, he needs none; it is best not to spoil the boy."

I remained beside my mother and thought her very unjust. I followed my father with my eyes and watched him as he pompously conducted his two daughters and his son-in-law towards the old seaman.

The two ladies started to go, and my father indicated to my two sisters that they were to eat the oysters without spilling any juice; in order that they might understand better, he took an oyster, and, in endeavoring to imitate the ladies, poured the whole liquid down the front of his coat.

Suddenly my father appeared to become uneasy, he recoiled a few steps, regarding his family fixedly, then the old seaman, and quickly returned to us. He seemed pale and his eyes had a singular look. He said to my mother:

"It is strange how that man opening the oysters resembles Jules.

Mother asked:

"What Jules?"

My father returned:

"Why, my brother Jules. If I did not know that he had a good position in America, I should believe it was he."

My mother ejaculated angrily:

"You are a lunatic! You know very well that it is not Jules. Why do you talk such nonsense?"

But father said persistently: "Go and see for yourself, Clarisse; I should like very much to have your opinion."

She arose and joined her two daughters, and I also went and looked at the old man. He was dirty, wrinkled, and did not turn his attention from his work.

My mother returned, and I saw that she trembled. She said, very quickly:

"I believe it is he. Go and pump the captain. It will be prudent, for we certainly cannot claim this worthless fellow as our relative."

My father went, and I followed, feeling strangely agitated. The captain, a tall man, very thin, but with immense whiskers, walked the bridge with an important air, as if he were commanding an India mail steamer. My father mounted the steps with ceremony, and spoke of his calling with compliments; asked him the importance of Jersey, its inhabitants, their manners, their dress, the nature of the soil, etc. He thought the captain would, perhaps, speak of the United States of America; but he only spoke of the vessel in which we were sailing, how it was equipped, etc.

Finally my father said, in a troubled voice:

"You have a very interesting old man opening oysters. Do you know any particulars of this good man?"

The captain, beginning to be bored by the conversation, replied carelessly:

"He is an old French vagabond whom I found in America last year. He has relatives in Havre, it appears, but does not want to return to them, as he owes them some money. His name is Jules—Jules Darmanche or Jules Davranche, it is immaterial which. It appears that he was well-to-do at one time, but you see yourself that he is much reduced at present."

My father turned a livid hue, his eyes grew haggard, and, in an inarticulate voice, he said :

"Ah! yes, very true. I thank you very much, captain."

And he walked away. He approached my mother, who said to him, in an agitated voice :

"Sit down ; did you find out anything ?"

He sank upon the seat and exclaimed :

"It is he !—it is he ! What are we to do now ?"

She replied quickly :

"We must take care that our son-in-law suspects nothing of this."

My father seemed paralyzed. He murmured :

"What a catastrophe !"

My mother ejaculated furiously :

"I have always thought it would amount to nothing, and now he returns in this state ! As if one did not know how deep a Davranche could sink !"

And my father passed his hand across his face as if he would brush away mother's reproaches.

My mother exclaimed :

"Give money to Joseph immediately and let him pay for the oysters. But he is not to recognize that man nor to say anything that will cause *him* to be recognized ; and let us go to another part of the ship, where that man cannot approach us !"

With these words she rose, and my father gave me a five franc piece.

My sisters regarded our parents with a surprised stare ; and I said the sea had made mamma a little uneasy, and departed on my errand.

I asked the old man :

"How much do we owe you for the oysters, sir !"

I so longed to say : "My Uncle !"

He replied :

"Two and a half francs."

I gave him my five-franc piece and he returned me the change.

I looked at his hand, a poor, wrinkled, horny hand, and I looked into his face, so old and wrinkled and filled with deepest sadness, and I said to myself :

"This is my uncle—papa's brother—my uncle !"

I gave him ten sous as a *pourboire*.

He thanked me profusely, and said, "God bless you, my young sir !" in a tone of one receiving alms.

My sisters looked at me amazed at my generosity.

When I returned the two francs to my father, mother said, in a surprised voice :

"Did they cost three francs ? That is impossible !"

I declared in a firm voice :

"I gave ten sous as a *pourboire*."

My mother started and looked at me, exclaiming :

"You are crazy ! To give ten sous to that man—that wretch !

She stopped, looking at my father, who pointed to his son-in law.

Before us, on the horizon, as if growing from the sea, a violet strip was visible.

It was Jersey.

We returned on another vessel, in order not to encounter him. My mother could not conceal her uneasiness.

I never saw my father's brother again.—*From the French of Guy de Maupassant.*

* * *

Too Wet.—The wettest place in the world is said to be Cherra Ponjee, in the Khasi Hills of Assam, India. There the rainfalls average for a single month from 100 to 200 inches.

Skeleton Leaves.—Soak in rain-water for some weeks, remove by floating upon a card, and very gently remove upper skin with a soft camel's-hair brush. Float in water and catch on a card with the other side uppermost, and remove other skin and pulp. A stiff brush may be needed, to be used by dabbing. Do not touch with the fingers. Finally, brush well, bleach with javelle water ; wash and dry.

DOMESTIC DIETETICS.

SPECIALLY PREPARED FROM PRACTICAL TESTS, FOR THE LADY READERS OF THE "AMERICAN ANALYST."

SEASONABLE FOOD.

January.

Meats.—Beef, mutton, ham, kidneys, liver, venison, sausage, pork.

Game and Poultry.—Grouse, hare, pigeon, quail, chicken, duck, turkey, rabbit, geese.

Fish.—Bream, cod, crabs, eels, carp, flounder, halibut, herring, lobster, mackerel, mussels, oysters, perch, rock-fish, salmon, smelt, whitefish.

Vegetables. — Artichokes, beets, beans, cabbage, carrots, cauliflower, celery, garlic, lettuce, onions, parsley, parsnips, potatoes, shallots, spinach, squash, tomatoes, turnips.

Fruit.—Apples, bananas, grapes, oranges.

PRACTICAL RECIPES.

Bouillon.—Cover a good-sized soup-bone with water, put in two or three stalks of celery and a teaspoonful of salt ; cover the pot closely and boil gently until the meat on the bone is in rags. Strain the broth through a colander, and set away to cool. The next day skim off all fat that has arisen and pour the soup, which should now be a jelly, into another vessel, being careful not to pour in the sediment at the bottom. If the soup looks cloudy beat the white of an egg very light and add it to the soup before heating ; now put it on the fire and boil up, then take off and let it stand a few moments. Dip a flannel cloth in ice-water and strain the soup through it, a little at a time, rinsing the cloth in the ice-water every few moments ; it should then be clear as amber. Repeat before serving.

Oyster Patties.—Make the patty cases as follows : Wash the salt from four cupfuls of butter, and work the butter in cold water until it is soft and pliable. Wipe it dry ; sift four cupfuls of flour and half a teaspoonful of salt into a pan, and into this rub half of the butter ; make it into a dough with a little ice-water ; roll it out into a flat sheet and spread over it the remainder of the butter ; fold the sheet together and roll out once ; do this three times, then put the paste on a stone plate and set on the ice. When thoroughly chilled roll it out three times again and set away ; thus continue until the butter is thoroughly worked in. It is all the better for being made several days before using, and if convenient it may be rolled out once a day for two or three days. When ready to use, roll the paste into a sheet quarter of an inch thick, cut it into round cakes, and on each cake put another of the same size, with a circle made with a smaller cutter dented into it. Before putting on the second layer wash the edges with beaten egg. Brush beaten egg over the top, and bake in a steady oven until very light and thoroughly done. Take from the oven, remove the dented piece from the top, carefully scoop out the insides and fill up with the following mixture : Remove the hard part from fifty good-sized oysters ; drain them, and put the liquor over the fire in a saucepan to heat. In another pan put a large spoonful of butter and two of flour and cook together, then add the hot liquor and a few tablespoonfuls of cream ; season highly with red pepper, salt and nutmeg ; cook up until very thick, then add the oysters for a few moments. Fill up your shells, and set in the oven for a moment before serving.

Sweetbreads and Brains. — Let two good-sized sweetbreads and a set of calves' brains stand for an hour in cold water ; then carefully remove the tough parts from the sweetbreads and cleanse the brains. Wash again in cold water, and then drop them into boiling water, and cook until tender. As soon as done put them into icy-cold water to blanch ; cut them into small even-sized pieces ; brown two tablespoonfuls of flour in a saucepan, add to it a tablespooful of butter and cook for a moment, then put in the sweetbreads and brains and brown them nicely, adding salt, pepper, and a little grated onion. When they are brown pour in enough sweet cream to make a thick gravy, adding more seasoning if desired. When ready, pour it into the centre of a very hot platter, and serve with a border of French peas. This quantity will be sufficient for eight or nine persons.

Brandied Cherries.—Take a jar of preserved cherries, turn them into a dish and add a third of the jarful of French brandy ; mix thoroughly, and put back into the jar until wanted. Have them very cold when served, and eat with white cake and whipped cream.

Molasses Pudding-sauce. — Put together in a saucepan half a cupful of water, a cup of molasses, a tablespoonful of butter, a small half teaspoonful of cinnamon, a pinch of salt, and a quarter of a teacupful of vinegar or the juice of a lemon. Boil up and simmer for twenty minutes.

THE ICONOCLAST.

HOW HE IS DEPRIVING THE WORLD OF ITS POPULAR FAVORITES.

A story which has nothing to do with the main stream of history beyond the fact that it is found floating on it, or on some of its tributaries or offshoots, particularly if it is striking and *ben trovato*, was accepted as a matter of course, until the "critical sapper" made his appearance on the scene and took the trouble to explode it. It is owing to his labors, according to the London *World*, that Alfred the Great and the neatheard's cakes, Fair Rosamond and Queen Eleanor's poisoned bowl, Blondel's minstrelsy and rescue of Richard Cœur de Lion, the Countess of Salisbury's garter and Edward III., Prince Hal and Chief Justice Gascoigne, among others, have been banished to the limbo of fiction with Llewellyn's dog, Whittington's cat, and Bruce's spider. It is through him that William Tell's apple and Sir Isaac Newton's apple have taken their places in the same hamper with the still more venerable and celebrated pippins of Paris and the Hesperides. It is from him that we have learned what was in truth the interchange of courtesies between Lord Charles Hay and M. D'Auteroche at Fontenoy, how the Vengeur really did go down, how Horne Tooke wrote the speech on Alderman Beckford's statue at Guildhall, which was not addressed to George III. ; how the Abbe Edgeworth did not say to Louis XVI., on the scaffold, "Fils de Saint Louis, montez au ciel ?" how Cambronne's and Wellington's proverbial utterances were never heard at Waterloo, and any number of other singular and instructive discoveries of the same kind. It would, however, be a great mistake to imagine that the "critical sapper" has fulfilled his mission. In all directions "fresh fields and pastures new" are inviting his attention—and, much as he has already done there is still plenty for him to do. Neither his special branches of investigation nor his own resources are by any means exhausted, and it will not certainly be his fault if a single rag of romance is left to us in all the wide expanse of general or personal history. Just now he has been occupying himself in the columns of *Notes and Queries* in explaining the true and genuine story of "The Lord of Burleigh," and pointing out how little it agrees with that which has been hitherto in circulation, and on which Lord Tennyson's ballad is founded. According to him the Lord of Burleigh was not mistaken for "a landscape-painter," as the poet represents, but for "a highwayman," by the simple people of Bolas, in Shropshire, where the father of his innamorata was the blacksmith ; and further than that, when he first married Sarah Hoggins, the "village maiden," he committed bigamy.

LA GRIPPE.

THE NEW ACQUAINTANCE OF A CONTAGIOUS CHARACTER.

Shortly after the arrival of Mary Queen of Scots and her Court at Holyrood, the Queen and all her household, both French and English, were taken down with the influenza. The Queen kept her bed for six days. The name given by the Court to the disease, which from the details given is easily recognizable as one of the same class as that from which humanity has lately suffered was "The New Acquaintance." Since that day the disease has often visited mankind, the latest violent outbreak having occurred about forty years ago. During all this time singularly little seems to have been learned about it. Notwithstanding the great improvements which has taken place in scientific observation and in statistical facilities, the chief mysteries of the disease remain as much mysteries as ever. The microbe, if it be a microbe that does the mischief, is undiscovered, nor has the problem of the method of propagation been fully solved. Upon the latter point, however, that of the method of propagation, the recent official report of the British Government presents some important information. It is true that the report, the chief points of which are given in the *Practitioner*, mainly concerns the epidemic of 1889–90, and does not cover that of the early part of the present year, in which the mortality was higher, and in which the contagion was more rapid than in that of the year previous. But the method of propagation was, no doubt, much the same in the two years, and the conclusions which the report establishes will probably not be invalidated by later investigations. The inquiry was intrusted to Dr. Franklin Parsons, who has sought information in every quarter of the globe. The facts which the report has got together seem to show that the disease is carried by contagion from person to person and is not carried in the atmosphere. This opinion is expressed very decidedly by Dr. Parsons and other experts, and is deduced from a variety of facts. The general course of the disease has been, in the northern hemisphere, from east to west, and, therefore, in a direction contrary to the prevailing surface winds. It has followed the lines of human intercourse, striking the cities first and the provincial towns and rural districts later. It seems also to be pretty well established that the disease does not travel faster than human beings or than letters can travel. The fact also that the disease has prevailed independently of weather or climate seems to point to the probability that it is not of atmospheric origin. It has appeared in all seasons, existing simultaneously in the northern and southern hemispheres, that is, at opposite seasons of the year. It has flourished under all kinds of conditions of heat and cold, dryness and moisture, in Russia and in India, in Great Britain and in the dry air of Egypt. In Spain it was ushered in by a month of cold, dry weather, and in New York by the moistest and mildest season on record. It is, of course, well known that the disease has spread rapidly to the various members of households into which it has been introduced. It accords with the theory of infection; also, that the disease has usually attacked the persons liable to infection. Thus, husbands who go to town daily to business have been attacked before their wives. It is claimed, further, that persons living out of the way of infection have, as a rule, escaped influenza. The persons so favored would be deep-sea fishermen, lighthouse keepers and the like. Dr. Parsons has made many inquiries among these classes, and the replies have shown that they have usually been exempt. The fact that the disease has often broken out on shipboard in mid-ocean seems to point to a different explanation of its origin, but it is said that in no case has it appeared upon a vessel which has been so long at sea as to preclude the possibility of the infection having been brought from shore. Dr. Richard Sisley, in his new book on "Epidemic Influenza," very strongly expresses the same view, that the disease is almost entirely propagated by infection. The British official report also discusses the question of the origin of the present outbreak, giving an account of the "fog" fever of 1885 in Australia, the dengue in the Levant and the antecedent horse disease, and the Chinese floods of 1888 and 1889. It is pretty clear, however, that all that is known definitely of the history of the epidemic called the "grip" is that it first broke out in the early summer of 1880 in Bokara, and in Russia in the autumn of the same year. With regard to infection from animals, it seems pretty clear that the disease may be communicated from animals to men, and from men to animals. There appear to have been some epidemics of influenza among animals, particularly among dogs, in 1889. In the spring of the present year Dr. Sisley saw many cats suffering from influenza in London. He, however, made inquiries in the Zoological Gardens and learned that there had been no unusual mortality among animals during the three epidemics of 1889, 1890 and 1891. There is a practical sequel to the recognition of the contagious character of influenza. Dr. Sisley proposes that the notification of influenza should be made compulsory by Parliament. The English local authorities already have the power to decide upon the infectious character of any disease, and to apply to it the provisions of the Contagious Diseases Act. But it is now proposed that influenza shall be classed by Parliament with diphtheria, smallpox and such other maladies, and that the local authorities be required to treat it in a similar manner.

FROST.

HOW IT ACTS IN DESTROYING PLANT LIFE.

The influence of warmth in the atmosphere is important in the development of the organism. It is a remarkable phenomenon that the condition of winter sleep in plants, during which the sap is congealed, is not equivalent to death. One would suppose that the freezing of the sap in plants, must necessarily destroy all its life functions. But, in the first place, congelation and freezing of the juices of living organisms, however subtle the distinction, are not the same. It is true that plants die under the influence of exceptionally low temperature, and are said literally to be frozen. But by no means all plants or even dry seeds are exposed to danger from this cause. It is further to be remembered that the operation of cold either affects the plant directly, or influences it indirectly by operating on the soil, thus producing changes in the plant which arrest or destroy its growth. For example, the moisture freezing in the surrounding soil envelopes the roots in ice. The ice expands, rupturing the vessels of the roots, or tearing the roots from their place, and the plant is destroyed. If a previously moist soil is completely frozen, the rupture of the finer rootlets is an inevitable consequeuce of the attendant swelling and heaving of the soil. The direct freezing of plants is due probably to the formation of ice in the cells, and the rupture of the cells by expansion of the ice. But it is easy to observe that, for example, buds with thick sheaths frequently freeze and thaw again, without incurring injury, while delicate leaf-beds are frequently destroyed in a single frosty night. It is unquestionably the sap on which the frost operates. Thick envelopes and concentration of the sap are the natural means of protection. But in spite of all this the cause of the death of the plant is attributable not so much to the direct operation of the freezing, but rather to the disturbances in the sap generated by a too sudden subsequent thawing. As is well known, the animal organism is similarly influenced in freezing. The cold causes a contraction of the capillary vessels by which the flow of blood is impeded, and the blood corpuscles themselves undergo a corresponding disorganization. If this condition has not progressed so far as to involve the death of the whole organism, the circulation of the injured corpuscles through the system will result in the recovery of the frozen part. But if this operation proceeds with too great energy the blood intermixture will create disturbances attended with fatal effects, similar to what is observed in the too rapid thawing out of frozen plants. Hence it follows that an unintelligent zeal in the resuscitation of frozen persons may result in the sacrifice of life, or, at least, of a limb.

TEETHING AND INFANTILE ILLS.

Between the ages of six months and two years, children are under the process of teething. In civilized countries and especially in great cities, it is a very painful period to the little one and is almost invariably accompanied by sleeplessness, sickness, mal-nutrition, and in some instances by a permanent weakening of the physical organization and by even death itself. What is the meaning of this trouble and what is its cause. In savage communities, the infant cuts its teeth with little or no pain, except to his mother, whose breast and hands he often lacerates in the gnawing habit with which Nature quickens the process. Seldom it is sick, and equally seldom is it sleepless. In this regard it resembles the young of all the higher animals, who pass through dentition without trouble or a single pang. Is there then some profound difference between civilized and savage women and children, or are all the ills of teething with the former the result of ignorance and carelessness? The slightest thought will show that the latter is the case. The condition of a child's system before weaning, is the same as its mother, though perhaps a little better and stronger. The milk carries with it qualities and tendencies, as well as nourishment. A nursing mother, whose intestinal system is in abnormal state is bound to transmit some enteric irregularity to her child. The moral is obvious. If the mother's system be in robust health, that of the child will be the same and *vice versa*. If, therefore, the babe in dentition shows pain, eruptions and other ailments, it is a sign that the mother needs treatment as much as if not more than the child. To prevent the latter suffering from any of the disorders named, the maternal organization must be thoroughly cleansed and purified. Lukewarm baths, light exercise, generous diet, fresh air and sunlight should be insisted upon. The bowels should be kept open with fruits and sub-acid vegetables. If chronic constipation be a symptom in the case, a gentle aperient such as Ayer's Cathartic pills is of great advantage. But as to any humors that may be lurking in the tissues, or worn-out matter resulting from the tremendous strain of maternity, these must be destroyed or dispelled before permanent health is a possibility. To secure this much desired for result, the mother should use Ayer's Sarsaparilla regularly and thoroughly. Its only effect upon lactation is to increase the flow of milk and to enrich its quality. At first it simply expells all impurities from the circulation and tissues, and then it strengthens and improves the vital organs. Then follows naturally a higher vigor of the body, a better appetite and an augmented power of assimilation. As the mother undergoes these changes, the child does likewise. Its buoyancy increases, its complexion clears, it sleeps sounder and the pain and torment of teething either disappear or are reduced to insignificant proportions. Better still it regulates the bowels of the infant, and prevents on the one hand the troublesome constipation and on the other the weakening diarrhoea so common to it at this stage of its career. It is not necessary to give Ayer's Sarsaparilla to the child direct, though a small dose is at times of the greatest benefit. It should be administered via the mother. In this way it passes from her frame to the infants in the pleasantest form, and secures the best possible results. With Ayer's Sarsaparilla thus employed, teething and other ills incident to this process are stripped of nearly all their terrors.

BUSINESS NOTES.

AN INTRODUCTION

to the through car service of the Wisconsin Central Lines and Northern Pacific Railroad is unnecessary. Its advantages and conveniences have been fully established. It is the only route to the Pacific coast over which both Pullman Vestibuled first-class and Pullman Tourist Cars are operated from Chicago via St. Paul *without change.* Through train leaves Chicago every day at 10.45 P. M. The traveler via this route passes through the most picturesque, interesting and prosperous belt of country in the Western World. There is scenery with most striking contrasts that range from the rolling prairie and the pine forest level to the wildest passes of the wildest mountains in the world. There is a series of the noblest cities, towns and villages of every variety and size, from the hamlet or the tiny farm, upward ; the richest mines in the world ; the greenest and most lasting pasturage ; the wildest scenery on the continent ; canons as weird as a nightmare ; hills, snows and peaks startling in the magnificence of their beauty, and a perfection of comfort in traveling that has never been surpassed. Fast train via the Wisconsin Central Lines for St. Paul, Minneapolis, Ashland and Duluth leaves Chicago at 5.00 P. M. daily with Pullman Vestibuled Sleepers and the Central's famous dining cars attached.

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SHADE ROLLERS.

To show how an immense business in the manufacture of a small article, apparently of little importance, can be built up by an honest effort to give the public the best for the least money, we relate the following facts: In 1849, the father of Stewart Hartshorn started the manufacture of shade rollers on the balance principle in Boston. A few years later he removed to New York, and occupied the upper part of old Wallack's Theatre on Broadway. After the death of his father in 1859, Stewart Hartshorn continued the business there, but the rapid increase compelled several removals to larger quarters, first to Centre Street, then to 50th Street, until in 1872 the factory was removed to East Newark, and this has been regularly enlarged from time to time, as the exigencies of the business demanded it. Soon the Western trade required the erection of the large factory on Lake Michigan in Muskegon, where the Hartshorn factory is the principal one of that industrial beehive. Canada quickly demanded a factory there. At this time, these three factories with many hundreds of employees, and large offices in several cities are hardly sufficient to handle this immense business all grown up from small beginnings.

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Two Views.—Cyrus W. Field says that he has made thousands of dollars by a rigid adherence to punctuality. On the other hand, the late Dr. Jeter is quoted as having said that he had lost much valuable time, and money, too, by being prompt in keeping appointments, the other fellows being always behindhand.

Harmless Tobacco.—Smokers may be pleased to learn that Dr. Gautrelet, of Vinchy, claims to have discovered a method of rendering tobacco harmless to mouth, heart, and nerves, without detriment to its aroma. According to him, a piece of cotton wool steeped in a solution (5 to 10 per cent.) of pyrogallic acid, inserted in the pipe or cigar-holder, will neutralize any possible effects of the nicotine. In this way not only may the general admitted evils of smoking be prevented, but cirrhosis of the liver, which, in Dr. Gautrelet's experience, is sometimes caused by tobacco, and such lighter penalties of over-indulgence as headache and furring of the tongue, may be avoided. Citric acid, which was recommended by Vigier for the same purpose, has the serious disadvantage of spoiling the taste of the tobacco.—*Science.*

Better Light.—The Death Valley in California must henceforth be classed among the sentimental shams. The government survey party has found 200 varieties of mammals inhabiting the valley.

Tempering Material.—Leather cinders, made by burning waste leather, constitute the best material for hardening and tempering articles manufactured of soft and malleable iron and cast steel. It is said not to affect the surface of polished goods and to give a fine marbled appearance.

Water Works.—The number of water works in operation or under construction in the United States is 2,037, and the number of towns and cities supplied is 2,187. Pennsylvania has 216 works for supplying 245 towns, while New York has 199 works for 218 towns. Massachusetts has 128, Michigan 113, California 103, and Illinois 102 works. Twenty-five cities have duplicate or triplicate plants.

Applied Electricity.—The application of the power of electricity in mining processes is being increased rapidly. Electrical apparatus is used in ventilating, pumping, lighting, signalling, sub-surface hauling, hoisting, surface transportation, undercutting, drilling, channelling, blasting, crushing, pulverizing, separating, and clearing. Electricity has been particularly applicable where the motive power has had to be transmitted from distant points.

The Core.—Sirius, with a mass not more than double that of the sun, emits forty to sixty-fold his light. Hence its matter must be much more diffused ; that is, its condition must be one through which the sun passed millions of years ago. A vastly earlier stage is represented by the great nebula in Andromeda, which modern telescopic photographs show to be a whirl of glowing vapor, of unconceivable magnitude. It would almost seem to be the evolution of a universe of stars, rather than of a single system like the sun. Strangely, too, it "is probably more nearly at rest, relatively to the stars of our system, than any other celestial object we know." Thus it would seem to be at the very core of the known universe.—*Natural History Journal.*

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BECOMING SCARCE.—First quality second growth white ash for carriages is so scarce that the probability is that in a few years oak will be used for coach poles and other purposes for which ash is now used.

BIG SIPHON.—The largest siphon, probably, is on the levee between McKinney Lake and the Mississippi River. The main pipe is two feet in diameter and 216 feet in length, and it has a discharging capacity of 26,000,000 gallons a day.

CORN BREAD.—Corn bread has various names in different localities. The general name of the article is Indian Bread. In Delaware griddle cakes made of Indian meal are called corn cakes. In Maryland they are called cookies. Pone is the name for Indian bread an inch or more in thickness and baked to a crisp crust top and bottom. In parts of New England corn meal, baked into a thick crisp cake, is called Indian bannock. The Puritans, it is supposed, learned the art of making that bread from the Bannock Indians.

ROAST FISH.—The Baron Munchausen may have been slandered after all. One of the baron's so-called whoppers was a tale about roast pigs running around with knives and forks in their ribs, begging people to eat them. And now it turns out to be historically true that after the Caspian Sea was overflowed by oil in July, 1869, and had caught fire and burned for days, its entire surface was covered with delicately roasted fish, such as those in honor of which Master François Villon wrote his great "Ballade of Roast Fish."

WHOLESALE HASH.—A New York man has been granted a patent for making hash. The process is dedescribed as a method of preparing hash consisting in desiccating and comminuting potatoes, then mixing them in a raw state with chopped meat, also raw, and then baking the mixture until thoroughly cooked. There is nothing electrical in this, but it is a deserving innovation which will be hailed as a boon by countless boarders. Raw meat being required by the process, they will not be pained by the recognition, under a thin disguise, of yesterday's steaks.

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Beware of Substitutes and Imitations.

CAUTION:—Be sure the word "Horsford's" is n the label. All others are spurious. Never old in bulk.

NEW ENGLAND WITCHES.—An interesting series of papers, "Stories of Salem Witchcraft," by Winfield S. Nevins, was begun in the December *New England Magazine*. The first article gives an account of the witchcraft cases in New England previous to 1692; the outbreak in Salem Village; the court and places of trial; a full history of the trials of the accused persons, and copious quotations from the remarkable testimony in the court files are given, and the article is embellished with many portraits and drawings now published for the first time, and made specially for this series. The article is particularly interesting at this time, as the one hundredth anniversary of this remarkable delusion is approaching.

CHANCE FOR INVENTORS.—"No two children wear out clothes just alike," a father said. "Take, for example, my seven boys. I have to get knee pads for Cyrus, copper-toed shoes for Lucius and Darius, elbow protectors for Jonas, re-enforced trousers for Rufus, and stockings with double toes, heels, and knees for Cephas and Alpheus. Some of the inventions for protecting children's clothes against wear are decidedly useful, and they have been very profitable to the inventors, but a far larger fortune awaits the man who shall discover how to make children's clothing indestructible throughout. This would do away with the necessity of providing a special equipment for each child, and it would also meet the requirements of that vast army of children who wear out their clothes, not in spots, but all over."

NAMES FOR WATER.—Apothecaries as a rule think they know all about water—aqua *simplex*, as a Chicago physician once had it a few years ago. However, some of them may still learn a point or two from a certain polyglot pharmaceutical directory issued not long ago at Warsaw. Water may be water, yet it is exceedingly interesting to know there are at least nine varieties, to wit: aqua fontana, aq. fluviatilis, aq. lacustris, aq. nivealis, aq. pluvialis, aq. putealis, aq. glaciei martiæ, aq. palustris, and aq. tonitrualis. It is to be sincerely hoped that our brethren across the big pond will not resort to malicious substitution when short of one or the other brand, although in this country the practice is, we think, invariably to dispense the equally potent "aqua pumpana" for either of the aforementioned.—*Western Druggist.*

A WOMAN NATURALIZED.—In Philadelphia Dec. 12, Miss Louisa Kellner was naturalized in the United States Court. Miss Kellner is the principal of the training school for nurses attached to the Hahneman Hospital. She declared her intention of becoming a citizen two years ago and to-day applied to United States Commissioner Bell to arrange for the final legal proceedings. Miss Kellner was required to renounce all allegiance to the Emperor of Germany and swear fealty to the United States, after which she was pronounced a citizen. The records of the United States Circuit Court show only one previous application for citizenship by a woman. This was in 1853, when Lida C. Schem, a 17-year-old girl residing in Burlington County, N. J., declared her intentions. She did not, however, take out her final papers in this court.

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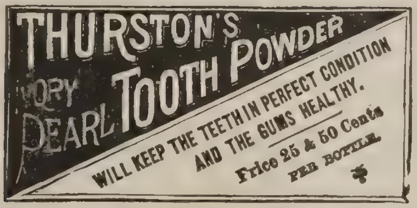

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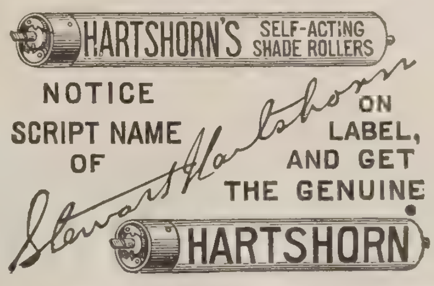

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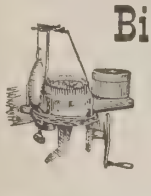

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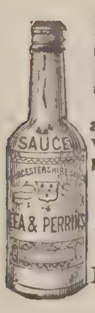

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CONTENTS.

Age and Vitality 18
American Beet Sugar 18
Baked or Roasted 18
Bright Stories
  How a London Case was Settled 16
Carpets and Infection 15
Dansk 14
Domestic Dietetics 17
Editorials 13
  Slang of High Degree; The Keeley Method; Adulterated Flour in Russia
Electric Light 19
Fads in Cures 14
Lobsters 17
Looking-Glasses 16
Odors 15
Photographing Colors 14

SLANG OF HIGH DEGREE.

The present age has a tendency towards sacrificing elegance for aptness in its daily conversation, and this gives rise to many popular expressions not in accordance with the rules or books of the wise men, which are known as slang. The word slang is of obscure origin, probably coming to us from the gipsies. A "slang-whanger" is a noisy, turbulent fellow, whose language is not of the best, and slang itself is generally considered disreputable. But there are qualities, classes, distinctions, and differences even in slang. There is the low, vulgar slang, whose origin is in obscurity, and whose use is among the vicious and degraded. Above this is the dictionary slang of known pedigree and traced descent, often classical. "High-toned" is an expressive term which precise people generally walk around. It means "nobly elevated," especially in character, and was coined by Sir Walter Scott. Similar to it are the "upper ten" and "upper crust," meaning the higher classes of society, which are said in the dictionary to be Americanisms, colloquial and low, the former being contracted from "upper ten thousand," and the latter carrying with it the suggestive superiority of the fancy top crust of a pie. The "brick" is a merry citizen, rarely one of the "upper ten," and is usually a grade or two below the "upper crust" in social standing, but he bears his mediocrity lightly, and laughs his cheery way through the world, often enjoying more than his stiff-starched superiors. He is a jolly good fellow, and never lacks friends. W. M. Thackeray first used the word in the sentence "He's a dear little brick." "A brick in his hat" is an expression applied to an intóxicated person, probably from the fact that in that condition his head feels as heavy and useless as a brick would be if worn in the hat. "The dickens!" does not come from the name of the genial novelist, but is a contraction of devilkins, diminutive of devil, and therefore only a polite way of saying "the devil." Webster calls it a vulgar interjection. "To play the devil" means to interfere with in a ruinous way, or to imitate the evil one; and this expression is given in solemn seriousness by the staid old dictionary without any sign of disapprobation, from which it may be concluded it is good English, although it would not add to the elegance of drawing-room conversation. John Russell Bartlett, in his dictionary of Americanisms, is authority for the statement that "on his own hook" means by himself or on his own responsibility, and John Milton, stately and ponderous, is accused of having originated the phrase "by hook or crook," which means in any way or by any method; and it is in this way that Americans are accused of obtaining the "almighty dollar," this last being an expression fathered by Washington Irving, which is so apt that it has had large use. The modern use of the word "rats" as an interjection can hardly be explained. Sometimes it expresses incredulousness, and is uttered disdainfully just after the climax of an exaggerated statement. Sometimes it is used to express disgust, and if rightly pronounced is effective. Its use as a noun has a place in the dictionary of slang as one who deserts his party or associates, among printers one who works at less than established rates. Lord Stanhope, also known as Lord Mahon, an English statesman and historian who died in 1875, gives this interesting history concerning it: "It chanced that not long after the accession of the House of Hanover some of the brown, that is the German or Norway rats, were first brought over to this country (in some timber, it is said), and being much stronger than the black or, till then, the common rat, they in many places quite extirpated the latter. The word (both the noun and verb to rat) was first, as we have seen, levelled at the converts to the Government of George I., but has, by degrees, obtained a wider meaning, and comes to be applied to any sudden and mercenary change in politics." In the book of Job, the oldest literature extant, and, according to John J. Ingalls, "the highest production of the human intellect," appears the sentence, "I am escaped with the skin of my teeth," which is modernized "by the skin of my teeth," and gives the idea of a narrow escape, one so close as to be just by the thickness of the skin on the teeth, which is so thin that no microscopist has yet been able to find it. "To cast in the teeth" means to throw defiant reproaches or insults spitefully, as one would cast a stone at the exposed teeth of a snarling dog. "Tooth and nail" denotes the manner of an action full of frenzied fury typified by biting and scratching, as when two belligerent cats make the fur fly.

◆

THE KEELEY METHOD.

The editor of the *N. Y. World* evidently is not a believer in the efficacy of Keeley's Gold Cure as a cure for the liquor habit. After declaring Keeley to be a quack, he says, rather abruptly, that "the Dwight, Ill., charlatan, Keeley, who calls himself the 'curer,' is in a fair way to be considered a killer. Another of his prize advertisers, ex-Congressman Thomas B. Ward, died in Plainville, Ind., early New Year's morning He was what, with hideous humor, is called a 'patient,' meaning a boarder at $25 a week in the Dwight Hotel. When he went home 'cured,' he continued the farce of hypodermic injections of cocaine, morphia or other sedative or soother, which, by a prismatically poetical license, is called 'bichloride of gold.' But, at home, the ex-Congressman became despondent, and, according to the conventional phrase, 'resumed his old habits'—in plain English, dropped the sedative cocaine and took up the old soother, whiskey. Before he went to Dwight, undoubtedly, a little indulgence in the old soother, permissible in the festive season; would have done him no harm. But he had been brought into a temporarily temperate condition, when even one 'spree' would be apt to result disastrously. He tried it, and then went to join the procession headed by Col. John F. Mines, with the Hot Springs, Ark., doctor and other eminent examples of the 'certain cure' in the Dwight regiment now parading somewhere in 'wind-swept space.' It is unfortunate for Mr. Keeley, or rather for his speculation, that the 'five per cent.' he admits may relapse should appear every month, or oftener, as his most distinguished victims. We do not hear of the fifty per cent. of 'nobodies' who relapse; but the newspaper writers, the well-known doctors, the ex-Congressmen, and others of note, are rather crowding the claimed 'five per cent.' record. It may be that the so-called 'treatment' is particularly fatal to men of more than ordinary mental gifts. If this is so, it would seem that the charlatan might be made liable, not only for obtaining money under false pretences, but even indictable for manslaughter."

READ PAGE 21.

ADULTERATED FLOUR IN RUSSIA.

A St. Petersburg scandal, exposed the day before Christmas, arising from the discovery of adulterated flour, is apt to make trouble for a number of people. The consignment comprised 300,000 poods (7,800,000 English pounds) of barley flour, which had been purchased from dealers in Libau with the view to regulating the price of wheat in the St. Petersburg market, as well as to afford relief to famine sufferers. An investigation proved that the entire consignment had been adulterated with chalk dust and other substances. To make certain of the nature of the adulterants employed the government officials had a quantity of the so-called flour subjected to a chemical analysis. This disclosed the fact that several substances had been used for adulterating the flour, and they comprised such a large proportion of the consignment that the use of the alleged flour would have constituted a very dangerous menace to the health if not the lives of those who partook of it.

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FADS IN CURES.

A BAVARIAN PARSON ESTABLISHING A PECULIAR SYSTEM.

Little boys, and particularly city boys, will hear, with a longing to be sent there of a summer, what the method of life is at Worishofen in Bavaria. In that favored spot the rector of the village, Sebastian Kneipp, has views which cannot commend themselves too much to the boy. Actually, he praises people for going without their hats; and for those who come to him with various ailments, from toothache to rheumatism, he orders the removal of their shoes and stockings, and a half hour's walk through dew or snow. But he does still better. Any man who has been a boy (and, unfortunately, there are many who never have been) remembers his early and rooted distaste for towels. It is true that, after a swim, shirts and other articles of attire stuck a good deal while hastily donned, because no demand was made upon the services of that effeminate adjunct of the bathroom; but, two minutes after the damp clothes were in place, what boy remembered the fact? Well, Pfarrer Kneipp of Worishofen tells invalids not to dry themselves after a bath, but to put their clothes on quickly while the skin is wet, and thus drive out disease. That is one of his ways of curing people afflicted with a variety of ailments; this and the rest of his methods he has set forth in a work called "My Water Cure," which has been lately turned into English. Besides marching them daily through cold dews at dawn or through the snow, the worthy Pfarrer forbids his patients to use woolen undergarments. Only cotton or coarse linen can be worn next the skin. For different troubles different kinds of baths are used, some directed at the lower extremities, others at the back or head, and these are repeated at intervals. Much of the success of his cures is doubtless due to the simple food in the village, to early rising and early bed-going, and the fresh air and exercise prescribed; for Pfarrer Kneipp attracts hundreds of people to his village, and treats them, without regard to rank or wealth, for a merely nominal charge. Just now the bichloride of gold as a cure for alcoholism has its defenders and enemies, and the believers in the faith cure have not vanished from the land. But the water cure, of which Pfarrer Kneipp's method seems to be a variant, has an antiquity which, if what is old must be respected, is more than respectable. Some of the oldest names of spots in Europe refer to the use of warm baths as places where primitive peoples gathered to relieve their aches and pains; and in America, wherever waters peculiar for temperature or taste were found, there the natives believed they were benefited by their internal or external use. Curiously enough, the mention of physicians or "leeches" in the early literature of Ireland includes the statement that their houses must be built over running water, whence a fair inference is drawn that the primitive folk of the British islands believed in the efficacy of water as much, if not as scientifically, as do modern followers of hydropathy. There seems, indeed, to have been no century in which water cure was not practised, and no land in which it was not a sovereign remedy, although writers on the subject are apt to go back to the last century only, or even begin their examination with the famous Priessnitz of Grafenberg in Austria, a farmer who, about 1830, was even more sought than is Pfarrer Kneipp today. He had a rival, about a century before, in a Sicilian monk who made water cures at Malta. The Priessnitz water cure was powerful in England and the United States from 1840 to 1860. Much good must be found in it, for in a modified degree it is still used for certain ailments by physicians of the first rank, who would scorn to be identified with the water cure otherwise. Pfarrer Kneipp exercises a profound personal influence over his patients, and is said to gain at once the submission of their skepticism to his firm belief in himself. He is simple, benevolent, unselfish, and possessed of an imposing yet charming presence. The English translator has been to Worishofen, and seen him leading his city patients back to the old remedies of plain fare, physical work, and ablutions. 'There was something positively majestic about him; his eye looks as though it could penetrate the inmost workings of the soul.' No wonder he has proved sufficient to a great range of sufferers through physical ills or imaginary. They obey him to the letter, and as he is excessively prudent, they run no risks while doing things that seem the converse of all they were taught to believe healthful. They walk about barefoot and barehead in all weathers, sleep in wet sheets, bathe in odd ways, draw on their clothes over a wet skin, and consume the teas made of 'yarbs' by the hands of the devout practitioner. For, besides being a water curist, and a bit of a faith curist, too, he is not a little of a 'yarb doctor' to boot. Fashion has fixed Pfarrer Kneipp with its glittering eye, and the inns at Worishofen thrive. Not less remarkable than Pfarrer Kneipp's water cure is the system Dr. Keeley pursues at Dwight, Ill., for the cure of alcoholism; though, for obvious reasons, resort thither is not exactly a fashion to which allusion is likely to be made as if it were a cure for gout. Priessnitz, Kneipp, Pasteur, Brown-Sequard, Koch, and Keeley follow each other with cures that soon disprove their own claims, or establish themselves more or less firmly in general practice. It is a mistake to trust to the mere number of patients who in each case claim they have been cured; but it is worse to assume an absolutely skeptical position and brand each new-comer as a quack, who works his cures through the imagination of the sufferer. Even when, in the long run, a system fails to meet the hopes of its inventor, it is pretty sure to leave behind some fact of value, as the Koch cure is said to afford an invaluable test of the existence of tuberculosis. Fashions in medicine are not altogether to be scorned."

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MINERAL WAX.—At the mouth of Mehalem river, on the cost of Oregon, a very queer substance is found. It has the appearance of a mineral at first sight, but on close inspection, and under practical test, it appears to be beeswax. It has all the useful properties of beeswax, and is sold in Astoria at the regular market price of beeswax. It is washed ashore at hightide in quantities ranging from a lump the size of a walnut to a chunk weighing 150 pounds. It is also found on shore in black soil, where trees are growing, at considerable elevation above the water, says a trade journal. A piece of this strange substance has just been submitted to expert examination in New York, and is declared to be what is known as mineral wax. This substance has for years been known to exist in the lignite beds of the Northwest. The quantities found on the Oregon coast would seem to indicate the existence of a tertiary lignite bed in the neighbórhood. It belongs to the hydrocarbon series allied to the retinites and ambers—fossil remains of resinous trees of the tertiary age.—*Col. Fruit Grower.*

DANSK.

A NEW FRENCH SUBSTITUTE FOR BUTTER.

London *Ironmonger* says that under the name of "Le Dansk" there is being introduced into England by M. Auguste Pellerin, of Paris, "a butter substitute which appears to possess the merit of being wholesome as well as economical. Its manufacture has just been begun at large works which have been erected at Southampton, and which were recently opened." The basis of "Le Dansk" "is the fat obtained from freshly slaughtered cattle, which is first converted into oleomargarine, and afterwards treated and made into 'Le Dansk.' The process consists in first reducing the fat to small pieces of uniform size in special machines, and then melting it at temperature of 50 deg. C. It is then transferred in a liquefied condition to water jacketed tanks, in which it is kept for about two hours and a half at the same temperature. After this it is drawn off into shallow vessels, where it remains for thirty-six hours at a temperature of 32 deg. C. during which time it assumes a crystalline condition. The product now consists of oleo and stearine, and these are separated by means of hydraulic presses, the oleo being pressed out and the stearine remaining in the press cloths. The oleo is then placed in churns with certain proportions of new milk and oil and some pure butter, and the ingredients are churned for fifty minutes. The contents of the churns are then removed and cooled in iced water, and the margarine is afterwards placed into mixing maching machines. Here it is salted and thoroughly incorporated, and afterwards packed in boxes and baskets for the trade.

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PHOTOGRAPHING COLORS.

HISTORY OF THE DEVELOPMENT OF THE ART.

Goethe, in hi[illegible]heory of colors, tells us how Professor Seebach, of Jena, discovered, in 1810, that chloride of silver exposed to the solar spectrum will take tints corresponding very nearly to those of the spectrum. In 1848 Mr. C. Becquerel announced that he had succeeded in photographing the colors of a prismatic spectrum falling on a plate of silver submitted previously to the action of chlorine. These colors, unfortunately, were fugitive, and disappeared in a few minutes. In 1850 Niepce de Saint-Victor produced some photographs of colors which lasted for several hours. After Niepce, Poitevin in France, Zeneker in Germany, Simpson in England, took up the problem without making great progress; finally M. Lippmann, quite recently, has exhibited to the Academy of Sciences a photograph of the spectrum in which the different colors are reproduced in a manner quite stable. None of these experimenters, however, have reached, as yet, a practical solution of the question. Alongside these labors of savants should be put the researches of some practical persons, who tried to turn the problem by obtaining colored proofs indirectly. In 1865 Baron Ransonnet, in Austria, conceived the idea of producing photographs of colors. He proposed to take three negatives of the same colored object, one with a red light, another with a blue, a third with a yellow, and then to transfer all three to stone by photography. In that way were obtained three stones corresponding, the first to the action of the red rays, the second to that of the blue rays, and the third to that of the yellow. Where these colors suited a particular place on each stone, they were covered over, and the rest of the stone rephotographed, after the fashion of chromo-lithographs. As a result the picture of the object photographed retained all the colors of the original. The year 1869 is a memorable date in the history of photographing colors. Two eminent experimenters, Mr. Cros on the one hand, and Mr. Ducos du Hauron on the other, gave a new solution of the problem. Mr. Ducos du Hauron, thanks to rare perseverance, reached practical results by taking three stereotype plates of the primitive colors, red, yellow, and blue, and interposing between the sensitive plates having orthochromatic qualities and the original, mediums which separated the colors. The separation of the three colors, red, yellow, blue, having been made—that is, their monochrome negatives having been obtained, they were combined, and the three positive colors, red, yellow, and blue, being photographed one on the other gave the result desired. The method of Mr. Ducos du Hauron is a process of composite chromo-photography. Later on, in 1875, Mr. Leon Vidal opened an establishment on the Quai Voltaire, in Paris, for the purpose of furnishing proofs in colors by a process of simple chromo-photography. There were as many lithographic stones as there were colors to be reproduced; the tints were reproduced in succession on paper, and afterwards a positive photographic proof on a very thin plate was put over the local tints, whether on flat objects or curved. This proof gave all the half tints and shadows which were desired, and altogether afforded a good result. Metallic objects, especially, were better reproduced than they had ever been by any other means. From one cause or another, quite apart from the nature of the process, the enterprise did not succeed. Afterwards Mr. Albert of Munich, and Mr. Bierstadt of New York, each added a stone to the edifice. The house of Orell Fussli of Zurich, Eckstein at The Hague, and several other establishments have undertaken to produce photographs in colors. The results obtained by these experimenters, who have endeavored to solve the problem by an indirect method, have been the cause of experiments which are of great interest from a practical point of view. These experiments have been for the purpose of manifold production of proofs on paper, aided by the powerful support of photography. Thanks to the discovery of sensitive orthochromatic plates, producing the gamut of true colors, photographing in color has made considerable progress. These photographic plates were at first prepared with collodion; afterwards, in 1885, Clayton and Attout-Tailfer prepared the first isochromatic plates with gelatine. Professor W. Vogel, Messrs. Lohse, Eder, and Leon Vidal have brought about a great advance in orthochromatism, and now the gamut of tints can be faithfully reproduced, thus opening up a vast field for experiment. Mr. Vidal has just taken up again and simplified, thanks to the new orthochromatic plates, the process of Mr. Ducos du Hauron, and he obtains beautiful proofs of composite chromo-photography. Following this order of ideas, a very skilful operator of Paris, Mr. Stebbing, employs a similar process of reproducing colors, which, combined with a judicious employment of ortho-chromatic plates, seems to me likely to obtain deserved success. I have seen proofs on which the color of the flesh and that of the costume of the sitter were quite exactly rendered. This new process is thus spoken of by Mr. Leon Vidal in the *Moniteur de la Photographie*: "We know that by this method (Mr. Stebbing's) the modeling and reproduction of the colors are due to light, and that is a strong guarantee of the exactness of the reproduction. Nevertheless, as to the photographic work, properly so called, it is well understood that light alone will not reproduce the colors directly. There is a pigmentary process, which, artistically directed, produces charming results."—*G. Tissandier, in La Nature.*

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Base-ball Leather.—There are two factories in Philadelphia that use use up in the season 100 horse hides a week each to cover base-balls. They are alum-tanned. One hide will furnish covers for 10 dozen No. 1 balls, and 5 to 8 dozen inferior ones. Horse hides for this purpose sell from $2.50 to $4 each, as to size. Kips are also used. They sell at 14 cents a foot and sheepskins at $3.50 to $8 a dozen. The best regulation balls sell at $1.25 to $1.50 each. A piece of rubber forms the centre, around which yarn is wound by hand. Then thep are covered. They are "dead balls and won't bounce."

CARPETS AND INFECTION.

A PREVENTABLE RISK TO WHICH EVERY FAMILY IS EXPOSED.

In the wonderful progress in the science and practice of hygiene that has come about during the last ten years, it seems strange that so little attention has been directed to the contamination of carpets, an evil of which the effects can only be serious and extensive. Formerly hospitals were ornamented with carpets, but the teachings of bacteriology speedily made it clear how and to what extent danger lurks in these so-called comforts, and in hospitals, at least, carpets are a thing of the past. What is true of a hospital is certainly true, though to a less extent, of the home. We know that every nook and corner not readily reached in the daily or frequent dustings is a nidus for the lodgment, growth, and development of disease germs, and perfect sanitation would require the reduction of these *ad minimum*. Of all such depositories, none can be more productive of harm than carpets. Here is an excellent bed for the breeding of germs, and in the case of fluids, as, *e. g.*, expectoration, for their subsequent drying and dissemination as dust. The very warmth that commends the use of carpets is a potent factor in the preservation and multiplication of the bacterium. This is but one aspect of the question, though a serious one. Carpets are answerable for yet other evils. Originally devised, no doubt, as much for warmth as for ornamentation, they have come to take the place of that solidity of structure that alone can secure healthful warmth. The flimsy, poorly-joined floors and doors of modern dwelling-houses make carpets a necessity for barest comfort, and have been made endurable only because of these defects. This is the serious aspect of the question in point of remedy. An uncarpeted floor means draughts, cold, and every circumstance of discomfort; and until houses are better built, no matter what elaboration of painting, staining or polishing is bestowed upon the floors, their imperfections of structure would still make rugs or carpets a necessity. We are not aware of any statistics to prove the unhealthfulness of carpeting, nor is it plain in what way reliable data could be obtained; yet we are none the less convinced that carpets exert an evil influence, especially in the propagation of our dreaded scourge, tuberculosis. That the sputum of phthisical persons may be dried, preserved and disseminated in the dust of the room is a proposition that in the present state of our knowledge needs only to be stated to be believed. How often this has happened—indeed, is happening every day—and how often such infections pass for cases of family tendency and the like can only be surmised, but there can be little doubt that theory and fact are in close accord. What can be done to remove this evil. Little, we confess; nothing without scientific agitation of the matter. Perhaps a radical cure is not to be expected, but a compromise may be effected. The necessities of our domestic architecture, the warmth insured, and the quiet that carpets secure, will effectually prevent any attempt at removal; but the same objects may be obtained from small rugs, which can be frequently dusted and at somewhat longer intervals taken to the cleaners for thorough steaming. Large carpets fastened to the floor, and to a less extent large rugs, not easily taken up for dusting, should be condemned. A general spread of knowledge concerning the growth and diffusion of micro-organisms will do much to secure the needed reform, but until public attention and fear are aroused nothing can be done.

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Useful Mountain.—Almost in the exact geographical center of Wyoming is a mountain of solid hematite iron ore, more than a mile wide and over two miles in length. Besides the iron, the mountain contains lignite coal enough to warm the entire world for a century, and a dozen of dried up lakes of soda, where the soda is deposited to a depth of over 300 feet.

ODORS.

A PHYSICIAN DISCOVERS THEIR PHYSICAL ACTION.

The direct action of odors on the nervous centres is a subject worthy of careful research and study. Goethe had a strong dislike to the odor of apples; Schiller liked the odor. Some persons are made absolutely ill by the odor of onions that are being cooked, while other persons rather like it. The odor of the lily has a most potent effect in many instances, and I believe there is no person on whom it does not produce a sense of depression and nausea. I have known it cause positive faintness. I am myself always disagreeably affected by the odor of carbolic acid, and can never remain many minutes in a room where a trace of it prevails. In cases where the effect of an odor is instantaneous, it is fair to suppose that the impression made on the olfactory surface is transmitted direct to the olfactory centre of the brain, but there must also, in certain examples, be a further transmission to the sympathetic ganglia. The central seat of the olfactory sense must be very near to the central seat of memory, for it is noticeable that nothing recalls a past event like an odor. A little child was accidentally thrown out of a pony-carriage in a country lane. Near the spot where the fall took place there was a manure heap, which gave forth the peculiar dry ammoniacal odor so often recognizable from such heap—an odor distinctive yet not altogether unpleasant. The child was stunned by the fall, and on recovering and returning to consciousness smelt this odor powerfully. Over fifty years have elapsed since that little mishap, and yet whenever the person referred to passes, in country lanes, a heap giving out the same odor, the whole scene of the accident recurs with every detail perfect, and sometimes with a recurrence of the giddiness and nausea which were experienced at the moment. In some of the lower animals memory by odors is often singularly exhibited. In the dog the memory by odor seems a special part of the nature of the animal. The "scent" of the fox-hound and of the stag-hound is of this character. In the trained collie the remembrance of an object hidden—a stick, for instance—may be retained for three-quarters of an hour, so perfectly that the animal will fetch the object at command. But if the object be coated with something giving an odor which the animal is familiar with, the time is infinitely more prolonged. Some odors lead to sleep, like the odor from dried hops; others lead to wakefulness, like the odor of dead flowers or leaves. Still others allow sleep, but provoke the most terrible dreams, like the odors arising from a pillow in which feathers are decomposing. Habit modifies the effects of odor. Merciless smokers laugh at the "faddery" of women who become faint if a smoker charges the air they breathe in a confined space, a small room or a railway carriage, and are ready to compare the objection of a lady unaccustomed to the odor from the pipe or cigar with the carelessness on the matter shown some other lady who has become accustomed to the effect. But if a smoker gives up smoking and all contact with smoke for a few years, he is astonished at the unpleasantness of an air charged with smoke when he is then inclosed in it. I was once summoned, professionally, to a youth who was temporarily poisoned by inhaling the atmosphere issuing out of a small window of a club-room in which a number of men were smoking freely. They, in the body of the smoke, were not perceptibly affected. He, partly in the open air, was positively smitten to faintness by the empoisoned current from the room which flowed out of the window, and is still affected whenever he comes within the cloud of a pipe

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Steam.—A boiler that carries out water with its steam may show a large apparent evaporation, but the steam being wet is of less value in the engine. A boiler should give dry steam in all cases. Superheating is beneficial.

BRIGHT STORIES.

HOW A LONDON CASE WAS SETTLED.

The action was one for breach of promise of marriage. The plaintiff was a man, the defendant a woman. And what was more, the latter was at least old enough to be the mother of the former.

The plaintiff's story was simple enough. He was a young man of twenty-eight. It was in a second-class carriage of the Inner Circle railway that he had set eyes on the defendant. She asked him on that occassion to direct her from the Mansion House station to the Bank of England. He had offered his escort thus far, his own destination being in that direction. During the journey and walk she had confided in him that, amongst other things, she was unmarried, had an income of two thousand a year, and was very fond of handsome young men. In the end, Miss Mumpany had proposed that they should meet again, and they had done so continuously for the space of six months.

He did not for a moment suggest that this was a reversal of the old, old story of woman's love and base man's deception.

On the contrary, he declared in the coolest manner possible that he was a man of extravagant tastes, with a narrow income, and that he preferred stalls at the theater and nice little dinners at the Café Royal or the Berkeley, in company with and at the expense of Miss Mumpany, to a solitary seat in the pit and a shilling dinner in the basement of a coffee-house. In due course, he asked her to marry him purely for the sake of having control of so large an income. She had consented, and he had three letters from her [produced] full of the most extravagant terms of endearment, and containing repeated references to the time when she should be his loving wife. He had not kept the envelopes. And, finally, he had thrown up his business at her request, so as to be more constantly her companion, and, when every preparation had been made for the marriage, she had informed him that she was a married woman living separate from her husband.

Flora Mumpany was an old lady of sixty, separated from her husband, an Indian civilian, childless and possessed of a private fortune of two thousand a year. She was a prominent member of several philanthropic associations, and consequently spent much of her time from home. She denied all knowledge of the plaintiff, although she did remember on one occasion being directed by a civil young man from the Mansion House Station to the Bank of England. He offered to accompany her, and very possibly she mentioned her name to him on the way. That young man might have been the plaintiff, but she could not swear one way or the other at that distance of time. Beyond that she believed that she had seen the plaintiff but twice in her life, and then not to speak to.

Now came the truly remarkable part of her story.

At the time of her alleged intimacy with the plaintiff, she was, she said, on very friendly terms with a young Australian art student, a certain Miss Gertrude Gaylord, who lodged in the dining-room set of No. 90 South Ebury Street, where she herself occupied the drawing-room floor. They very frequently spent their evenings together, and amused themselves by spelling games, word competitions, consequences, and other similar pastimes. On one occasion she remembered distinctly a proposal being made that they should carry on an imaginary correspondence between a lover and his mistress; Miss Gaylord taking the part of the former, she of the latter. She did not know what became of that imaginative correspondence. The letters produced by the plaintiff, Edward Constant, were written by her on that occasion. She had tried to discover the whereabouts of Miss Gaylord, but without success. How any person could have so utterly disappeared she was at a loss to understand. She alleged that the whole charge was a gross and monstrous conspiracy, and that Gertrude Gaylord had, in the manner aforesaid, obtained these incriminating letters from her.

In addition she said that she had twice met that young lady in the street in company with a young man, and she believed, though she could not swear positively, that it was the plaintiff with whom Miss Gaylord was walking.

This was the astounding case for the defense.

The evidence had been concluded the previous evening, and the solicitor-general, who appeared for Mrs. Mumpany, was just rising in his place to make his final address to the jury, when a commotion was heard in the back of the court. A young barrister was fighting his way in, amid the curses and objurgations of the already overpacked throng about the doors. Gaining a temporary elevation, he addressed the judge:

"If your lordship pleases, I would ask your lordship to allow me to address you as amicus curiæ."

"Well, sir, what is it?" asked the judge testily. "You understand that only very exceptional circumstances can justify interference."

"I am perfectly aware of that, my lord; but two minutes ago I was passing the door of this court when I noticed a young lady engaged in a somewhat heated altercation with the doorkeeper. I inquired if I could be of assistance, and she informed me that her name was Gertrude Gaylord, and that, although her evidence was of the utmost importance in this case, she could not gain admittance. I thereupon undertook, I hope your lordship will consider with sufficient reason, forthwith to mention the matter to your lordship."

In a few minutes a tall, hard-faced girl appeared in the witness-box. In answer to the judge's questions, she said:

My name is Gertrude Gaylord. A year ago I was an art student, living at 90 South Ebury Street. My parents are in Australia. I know both Edward Constant, the plaintiff, and Mrs. Mumpany, the defendant. I read the report of this case in the paper this morning, and then realized for the first time that I ought to come and give evidence. It is perfectly true, as the defendant says, that she and I, for fun, carried on an imaginary correspondence between a lover and his mistress. I personated the lover. The letters produced are the letters which Mrs. Mumpany wrote in reply to mine. I gave them to the plaintiff, as I thought they would amuse him. I was at that time on very intimate terms with the plaintiff. Subsequently, his behavior was such that I refused to have anything more to do with him. I changed my lodgings to avoid seeing him again. That is, no doubt, the reason why Mrs. Mumpany was unable to discover my whereabouts.

The profound impression made upon those in court by this unexpected corroboration of Mrs. Mumpany's extraordinary defense can well be imagined. As for Mrs. Mumpany herself, she could hardly believe that she was in her right senses.

Her defense had been altogether a reckless piece of mendacity and here was a person whom she had never set eyes upon before, presenting herself in the witness-box and confirming the wonderful fiction that she had invented.

And as to the plaintiff Edward Constant, he was simply flabbergasted. He had spoken the truth when he had sworn in answer to questions put to him in cross-examination, that he knew nobody of the name of Gertrude Gaylord, and now he leaned across and declared to his solicitor vehemently that he had never to his knowledge set eyes before on the girl in the box. The attorney looked unconvinced, and held a whispered consultation with counsel, who, in turn, smiled incredulously. A few profunctory questions were then put to the witness by way of cross-examination, but it was evident that the barrister did not believe her testimoney could be shaken.

Mrs. Mumpany's counsel then got up and said he did not think it was necessary for him to trouble the jury with a recapitulation of the story, and the judge summoned up dead in the defendant's favor, with the result that Mr. Edward Constant left the court saddled with the costs of the trial and ruined in character.

A week later Mrs. Mumpany found herself together with the lady who had thus given such an unexpected turn to her case, in the office of the latter's solicitor. In the interval since the trial she had seen more of this Mrs. Parkson, alias Gertrude Gaylord, than she altogether appreciated.

"Well, Mrs. Parkson," said the attorney, "is this the lady whom you mentioned to me?"

"Yes, this is Mrs. Mumpany, who, as I have told you, is ready to appear as a witness on my behalf in the divorce proceedings. She will prove an intimacy with me of several years' standing and will swear that on both days when it is alleged I was down at Brighton with Mr. Blackthorn, on which my husband found his claim for a divorce, I was in her company, and slept at her house in South Ebury Street. She is very well known in philanthropic circles, and no one will for a moment doubt her word."

"That is very satisfactory," said the attorney.

As they left the office Mrs. Parkson turned to her victim and said:

"One good turn deserves another,' Mrs. Mumpany, doesn't it? I little thought when I went up to the law courts a week ago, to get an idea of the kind of an ordeal I shall myself have to pass through next month, that it was to result in such a mutual advantage to you, whom I had never seen before, and to me, whom you had never seen before. It was a bold stroke for me to pass myself off as Miss Gaylord, but now that you have consented to assist me in proving my alibi in the divorce court, I am amply repaid for the risk I ran.

LOOKING-GLASSES.

THEIR EVOLUTION FROM THE EARLIEST HISTORICAL TIMES.

The earliest mirrors of which mention is made in history were in use among the Israelites in the time of Moses. This law-giver, as is recorded in the Bible, commanded in a certain emergency that these articles should be transformed into wash-basins for the priests. They were made of brass. Doubtless similar utensils of this and other materials were in use long before that. At that same period black glass was employed for the purpose, as well as transparent glass with black foil on the back. It is related that the Spaniards found mirrors of polished black stone, both convex and concave, among the natives of South America. The mirrors of the ancient Greeks and Romans were thin discs of bronze, highly polished and usually fashioned with handles, though sometimes they were set upright on stands. Later on silver was used, and the first mirror of solid silver is said to have been made by Praxiteles in the time of Julius Cæsar. Subsequently silver mirrors took the place of brass or bronze ones almost altogether, although steel, copper, and even gold were also employed. "Looking-glasses" of metal were employed everywhere up to the fifteenth century. From the twelfth to the fifteenth century small mirrors carried in the pocket or attached to the girdle were regarded as indispensable adjuncts to ladies' toilets. The pocket mirror was a circular plaque of polished metal fixed in a shallow box and covered with a lid. Ivory was usually the material in such cases, and, as a rule, they were carved in relief with representations of love, domestic scenes, hunting sports and the like. Gold, silver, enamels and ebony were likewise used as materials. The sort of mirror worn at the girdle had no cover, but was provided with a short handle. In the Middle Ages, when steel and silver mirrors were almost exclusively used, a method of backing glass for the same purpose with thin sheets of metal was known. Small convex mirrors of glass were made in Germany before the sixteenth century, and were in demand until comparatively modern times. They were produced by blowing small glass globes, into which, while they were hot, was passed through a pipe a mixture of tin, antimony and resin. When the globe was coated inside it was allowed to cool and afterward cut into convex lenses, which formed small but well-defined images. Early in the sixteenth century a manufactory of glass mirrors was first established on a commercial scale in Venice, and the republic enjoyed a monopoly of this very profitable business for 150 years. The makers of looking-glasses formed an important corporation among themselves, and were allowed unusual privileges. Their process was to blow cylinders of glass, which were afterward flattened upon a stone, carefully polished and silvered, on the back with an amalgam. In this way quite large ones were produced, sometimes measuring as much as four feet in length. The secret was carefully guarded, and the laws were enforced which declared that any workingman at the trade who carried his art to a foreign State must return upon requisition, on penalty of imprisonment for his nearest relatives. If, notwithstanding this penalty, he refused to return, emissaries were sent to kill him. Nevertheless, in 1665 Colbert, at that time Prime Minister of France, imported from Venice twenty makers of looking-glasses, who set up their business in the Faubourg St. Antoine. Before long the French mirrors excelled the Venetian, and a fresh impulse was given to the art in 1691 by the discovery of a process for making plate-glass. From that time to this the looking-glasses made in France have been among the best in the world. Hand mirrors of metal are still in use in Oriental countries. In China and Japan they are usually made of bronze, slightly convex, and about twelve inches in diameter. The Japanese woman who is so fortunate as to own a mirror regards it as the most precious of her possessions. There is an ancient myth to the effect that the Japanese sun goddess once became angry and shut herself up in her cave so that all the earth was dark. To entice her from her concealment the other gods tried various artifices, but all in vain, until it occurred to them to construct a mirror, by which, when the sun goddess saw her face in it, she was drawn forth through jealousy and curiosity. When the Japanese empire first came into existence the sun goddess gave the mirror to her grandson, saying: "Look upon this as my spirit; keep it in the same house with yourself and worship it as if it were my actual presence." This mirror is to this day the most important article in the imperial regalia of Japan. Some Japanese mirrors are supposed to posses a magic quality, which has rendered them objects of superstitious reverence for centuries, and, in fact, it has even puzzled modern science not a little. When a strong beam of light is so reflected from one of them as to be thrown upon a scene, there appears upon the screen an image in delicate tracery perfectly reproducing the pattern engraved in relief on the back of the mirror, which, of course, is altogether hidden from the light. Inasmuch as the face of the mirror presents a surface that is perfectly smooth, apparently the reason for this phenomenon is difficult to find. Its cause, however, is simple enough. The preliminary operation of polishing the face consists in scoring the cast disc with a sharp tool in every direction. The thicker portions, where the ornamentation in relief is on the back, offer more resistance, and the result is a corresponding inequality of the polished surface. This inequality is not sufficiently marked to be visible to the naked eye, but it is enough to turn the rays of light, and thus the pattern of the engraving on the back is reproduced on the screen in the manner described. These so-called magic mirrors are so highly valued that they sell for from ten to twenty times the price paid for ordinary ones.

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LOBSTERS.

SOME INTERESTING FACTS CONCERNING THEIR HABITS.

"One rarely hears of a good-sized lobster now-a-days," said an ichthyologist to a *Star* writer. "Yet it was not so many years ago that twenty-five pounders were quite frequently caught. There is one preserved in the collection of crustacea at the Smithsonian Institution which weighed eighteen pounds at the time of its capture. Reliable records exist of specimens weighing forty pounds. One of that magnitude would be five feet in length, including the claws. Lobsters often travel in regiments, seeking new feeding grounds. Their migrating armies are always led by the biggest and strongest ones, while the mained and weakly struggle along behind. A fair-sized female lobster carries 20,000 eggs at a time. The eggs when extruded are covered with a viscid matter, which, drawn out into threads, attaches them to the long hairs that fringe the fan-like tail of the mother. These threads quickly become hard and strong, the eggs waving about in the water and being thus ærated. When they are ready to be hatched, the mother lobster oscillates her tail so as to assist the offspring to escape. The young at first resemble shrimps, being about one-third of an inch in length. They have bright blue eyes. After a few days they desert the mother and swim out into deep water, where they rise to the surface and lead a vagabond sort of existence for thirty or forty days. During this time the young ones change their shells four times. On the fourth occasion they shed their swimming organs and fall to the bottom, where they remain for the rest of their lives. During their existence as swimmers most of them are gobbled up by fishes for which they afford a favorite food. On the other hand, there is nothing which lobsters, when grown, are so found of as fresh fish. Flounders and other bottom fishes frequently fall a prey to their appetite, and sometimes they will nimbly capture small minnows as the latter go swimming by. They dig clams out of the mud or sand and crush the shells of mussels with their claws, devouring the soft parts. Young lobsters are called in the neighborhood of Nantucket 'grasshoppers.' In the swimming stage of their being they can often be dipped up in quantities from the surface of the sea on calm days. When it is stormy they descend It is the very exceptional specimen that lives to grow up. Lobsters are exposed to many perils. If they are so fortunate as to survive infancy, they must go through numerous periods of danger incident to the 'shedding' process. Now and then in the course of its growth the lobster finds that it must 'swell or bust,' and so it proceeds to divest itself of its suit of armor. The process is a long and dangerous one. Not only the outer shell is taken off, but even some of the inward parts of the animal, as the stomach bag, are removed. It is sick for some time afterwards, and fishermen consider it not fit to eat, though just before the shedding the creature is most esteemed for table purposes, because it is fullest of meat. Lobsters, like crabs have a way of 'shooting' their claws, as the operation is termed. Slight provocation will pursuade them to drop their arms and run away without them. It is said that a loud noise or a clap of thunder will produce this effect. An instance is recorded of an amateur fisherman who caught a lot of lobsters and, in order to keep them fresh, tied them by their claws and hung them by strings over the side of a vessel. In the morning only the claws remained attached to the cords, the lobsters having dispensed with them and disappeared. Lobster meat is just about sixth-tenths as nutritious as beef. It contains a remarkably large percentage of phosphorus. There is no way in which that element, supposed to be so important for nourishing the brain, can be so readily assimilated as in the shape of lobsters."—*Washington Star.*

DOMESTIC DIETETICS.

SPECIALLY PREPARED, FROM PRACTICAL TESTS, FOR THE LADY READERS OF THE "AMERICAN ANALYST."

SEASONABLE FOOD.

January.

MEATS.—Beef, mutton, ham, kidneys, liver, venison sausage, pork.

GAME AND POULTRY.—Grouse, hare, pigeon, quail, chicken, duck, turkey, rabbit, geese.

FISH.—Bream, cod, crabs, eels, carp, flounder, halibut, herring, lobster, mackerel, mussels, oysters, perch, rock-fish, salmon, smelt, whitefish.

VEGETABLES.—Artichokes, beets, beans, cabbage, carrots, cauliflower, celery, garlic, lettuce, onions, parsley, parsnips, potatoes, shallots, spinach, squash, tomatoes, turnips.

FRUIT.—Apples, bananas, grapes, oranges.

PRACTICAL RECIPES.

CALF'S FOOT SOUP.—Use eight calves' feet; make a seasoning of black pepper, cayenne and salt and rub it well into the feet; put them in the soup pot with two quarts of okras and twelve onions sliced, and two quarts of tomatoes cut up; pour over these a gallon of water and boil for two hours skimming the while. Strain the soup through a colander. Cut the meat from the feet into small bits and return it to the soup. Thicken slightly with a large tablespoonful of butter, cut in pieces and rolled in flour. Boil up and serve with dice of fried or toasted bread.

MUTTON STEW.—Cut three pounds of any inexpensive cut of mutton, into small pieces. Put three tablespoonfuls of butter in a saucepan with three of flour and cook them together until they are thick and smooth; then add the meat and cook for a few moments until it is fried brown on both sides; then add enough water to more than cover the meat. In another saucepan put three tablespoonfuls of butter, and fry in it until brown, ten or twelve very small onions cut in pieces, and a turnip cut in dice. When brown put these to the meat, cover the saucepan and cook gently until the meat is tender, probably for an hour and a half. Serve with a border of boiled rice about the dish.

CREOLE FISH SAUCE.—Put in a saucepan one pound of auchovies, one pint of port wine, one-half pint of vinegar, one onion, a few cloves, a little allspice and whole pepper, two or three pieces of mace, a handful of thyme, and a large fresh lemon sliced with the skin. Cover the saucepan closely and stew gently until the anchovies are dissolved; then strain and bottle for use.

CREAM PIE.—Put three cupfuls of milk to boil, and and when ready stir into them three well-beaten eggs with three heaping teaspoonfuls of flour mixed in them; add salt and sugar to taste and the juice and rind of a lemon. Boil up, stirring constantly until it is perfectly smooth. Take from the fire. Line pie-plates with puff paste and bake until brown in a quick oven. When done fill them with the custard mixture, sprinkle sugar over them and bake until brown.

TEA CAKES.—Three cupfuls of sugar, three eggs, one cupful of milk one cupful of butter, two cupfuls of flour, one teaspoonful baking powder. Roll out and cut into small cakes. Bake in a quick oven.

APPLE PUDDING.—Cut into slices a large orange or lemon and stew it until tender with three large fine apples; beat them up until they can be passed through a sieve; then add the yolks of eight eggs beaten light with half a pound of sugar and a quarter of a pound of butter; mix all well together and fill a baking dish. Cover with puff paste and bake for half an hour.

Mince Pies without Meat.—Six pounds apples cored and minced, three pounds raisins stoned and minced, three pounds hard boiled eggs cut very fine, three pounds powdered sugar, three-quarters ounce salt, one-half ounce cinnamon, same of nutmeg and mace, one teaspoonful cloves, grated peel of four lemons, juice of two, one-half pint brandy, one-half pint wine; mix all together and put it into a deep pan; have ready washed and dried, four pounds currants, and as you make the pies, add them with candried fruit.

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BAKED OR ROASTED.

WHICH IS THE FAVORITE METHOD OF COOKING MEATS

Most *gourmets*, for once in a way, will be able to agree with our somewhat alarmist contemporary, the *Lancet*, when it points out that the use of the close range, or "kitchener," has greatly increased of late—so much so as to bring about something like a revolution in gastronomic art, and cause the roast joint to become a thing almost unknown, and goes on to say that a return to the use of the roasting jack and open fire would prove to be a step in the right direction. We rather doubt, however, whether, as our contemporary avers, baked joints are really more popularly esteemed than roast ones. The reverse is rather the case with all who really know how to eat. The *Lancet* rightly says that a joint in an oven surrounded by dense steam vapor does not yield its juices so freely as when roasted in an open atmosphere, as can be seen by comparing the yield of dripping obtained in the dish in which a leg of mutton has been baked with the amount which a similar joint gives to the dripping-pan when roasted. That a very large quantity of the more oily portion of the fatty matters, especially of the fat distributed between the muscular fibres, does not leave the meat when baked, can be shown by examining a slice of baked meat, and comparing it with a similar slice of roast meat, when it will be seen that in the former minute oily globules are abundantly distributed among the fibres, while in meat that has been well and thoroughly roasted they are comparatively unnoticeable. Moreover, the gravy from baked meat, when cut, always yields more grease than does that from roast meat—though, as above stated, the yield to the dripping-pan is less with the former than the latter. This is true, but we beg leave to doubt that this retention of the volatile aroma and unctuous juices renders baked meat popular. Certainly, when digestion is feeble, it is highly injurious, and its continued use not only aggravates but also induces indigestion. We are not surprised that considerable benefit has resulted from the advice of the medical man to the patient to order his meat to be roasted instead of baked. We must, however, remember, that an oven which remains full of vapor is badly constructed. Among the most prominent improvements in cooking stoves is the careful provision for ventilation, and in such ovens meats are really roasted and not baked. Our knowledge at present regarding the respective digestibility of different fats is very imperfect; still, the general and popular opinion is that the more oily fats are less digestible and more "bilious" than the solid, and it is these fluid fats which form the grease of cooked meats. Much the same may be said regarding the method of cooking bacon. Thus, in the North of England thick slices of bacon are placed in shallow tins and cooked in the oven, while rashers are usually fried in a pan over the fire. In both cases, however, the bacon is cooked in its own "dip," or most oily portion of its fatty matter. It has long been pointed out that bacon cooked by either of the above methods is a "bilious" article of diet, whereas when bacon is toasted it is not apt to disagree even with decidedly "bilious" people, the reason being that the oily portion of the fat or "dip" is removed, and only the more solid fat left.—*London Caterer.*

AGE AND VITALITY.

INCREASE OF YEARS DOES NOT NECESSARILY PRODUCE OLD AGE.

Sir James Crichton-Browne has enumerated instances of long-lived persons possessing all their faculties unimpaired, and opened up a subject full of interest, and which even the large space occupied by his address did not allow him fully to develop. It seems a physiological law that the functions of the body must be kept in exercise in order to maintain their efficiency, and it is as true of the body as of the mill or any other machine that it will rust out from disuse sooner than wear out by employment. The fact is constantly observed in persons engaged in commercial pursuits who retire at the age of sixty and then fall into rapid decay, while professional men remaining at work preserve their vigor, often for another twenty years. It is a sad thing to see the nerve centres decay, with a corresponding weakness of body and mind, but it is still sadder to witness, with a wrinkling of the skin, a corresponding shrinkage of the brain, allowing vanity and some of the weakly passions which had been kept in suppression to come again to the fore. How different is the spectacle when the organ is kept in its intregrity by constant use, and the mental faculties preserved in all their pristine force. We have only to look around and to see our poets, Bishops, Judges, Ministers of State, and medical men long lived and still in mental vigor while working at their respective avocations. Very remarkable, too, is it that, as Sir James Crichton-Browne observed, the freedom of language will remain as good as ever; an illustration of this was observed but lately in a discussion on the London university questions, when two of the most logical and well-expressed speeches were made by octogenarians. We can at the present time point to statesmen and lawyers of great age still before the public; as not long ago we could see Lord Palmerston, Lord Brougham, Lord Lyndhurst, and others. In former times we may remember Newton living to be 85, while Sophocles is said to have lived to be 90 and Plato not much short of this. It is clear that hard work does not kill. The toil, however, must be genial and diversified. The man of business often has no occupation besides his bread-winning, whereas a medical man has a variety of subjects to interest him. A speaker at the recent international congress showed by experiments upon school children when three or four sums in arithmetic were given in succession that each sum showed an inferiority to the previous one, both in correctness and as regards the time in which it was completed. The one faculty employed was gradually exhausted, a fresh piece of evidence showing the necessity for diversity of work. In the treatment of person with mental trouble or worry the very worst method is to rely too much on what is called rest, meaning thereby leaving the patient with other employment than to brood over his sorrows. True rest to the mind is only to be obtained by the occupation of other faculties roused into action by new surroundings. There is no reason why old age should not be as happy and as enjoyable as any other period of life. If old persons be asked as to their consciousness of age they will all with one consent declare that there exists nothing of the kind. An old person has a knowledge of his age the same way as his friends; he sees it by looking in the mirror; by remembrance of past events, or the loss of contemporaries, but he is not constantly carrying about with him the conviction or feeling that he is old; he is thus still able to occupy himself in the business and pleasures of life. Buffon spoke of his green old age as one of the happiest periods of his life, although the kind of pleasures then experienced are, of course, different from those of youth; and even when decay comes, and a man is becoming free from the remembrance of all earthly things, then, as Sir James Paget says (and no better example could be found of full mental activity by continued work), it may be so ordered on purpose that the spirit may be invigorated and undisturbed in the contemplation of the brightening future. Another writer, speaking of old age in reference to the decease of an eminent barrister, also maintained that the highest faculties are kept keen by constant exercise, and the brain vigorous by constant action and renewal. The understanding has often been in the highest perfection in quite advanced old age, and that has been the best period of human life. It is the time when the rage and storm of passion have died away, when the jealousies and cares of a career have ceased and been forgotten, when memory lingers upon all that is bright and charming in the past, and when hope scatters her most glowing tints over the fast approaching future, or, in the words of Sir J. Crichton-Browne himself: "We are able to see in old age glimpses of the truth that its chief glory consists not in the remembrance of feats of prowess, nor in the egotistic exercise of power, but in the conquest of peevish weaknesses, in the brightness of hope, and in the discrimination of happiness around. "Depend upon it, the best antiseptic against senile decay is an active interest in human affairs, and that those keep young longest who love most.—*British Medical Journal.*

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AMERICAN BEET SUGAR.

AN INDUSTRY THAT PROMISES ENORMOUS DEVELOPMENT.

Four years ago the production of beat sugar in the United States was insignificant. To-day it is becoming an important industry. In a few years, under the fostering care of the government, it will assume gigantic proportions. Dr. Andreas Sigismund Marggraf, on the 3d of March, 1747, announced at a session of the Academy of Sciences in Berlin that he had discovered saccharine matter in beets from which sugar could be made. Little could he dream that in 1891 Europe would make 3 670,000 tons and America 25,000,000 pounds of beet sugar. The United States last year imported 601,119,476 pounds of beet sugar, valued at $18,348,417. Of this $16,031,431 worth came from Germany and the rest was made in Austria-Hungary, France, Belgium and the Netherlands. It is proposed to make the sugar in this country, and save for our people the money now paid for it to foreigners. In December, 700 delegates attended the first session of the State Beet Sugar Convention held at Lincoln, Neb. This event makes it pertinent to give a short statement of our new infant industry. In 1887 there was but one beet sugar refinery in the United States. It was situated at Alvarado, Alameda County, Cal. The Illinois refineries had been abandoned as not paying. In that year there were but 400,000 pounds of the sugar produced. In 1888 the total had increased to 3,600,000 pounds. The following year it nearly doubled. This year California turns out 13,000,000 pounds, and Nebraska and Utah 6,000,000 pounds each. A great impetus has been given to the industry by the present tariff. It permits until July 1, 1892, the free importation of foreign machinery for making beet sugar. Previously there was a duty of 45 per cent. on such machinery. Besides this, from July 1, 1891, to July 1, 1905, there will be paid to the producers of sugar, testing not less than 90 degrees by the polariscope, a bounty of 2 cents a pound, and on sugar under 90 degrees a bounty of $1\frac{3}{4}$ cents a pound. On application the Commissioner of Internal Revenue gives a license to make the sugar, which holds good for one year, and is renewable. The beet sugar factories now in operation under the Bounty law are as follows: Utah Sugar Company, Salt Lake City, 2,000 acres; Alameda Sugar Company, Alvarado, Cal., 1,000 acres; Western Beet Sugar Company, Watsonville, Cal., 2,500 acres; Chino Valley Beet Sugar Company, Chino, Cal., 2,500 acres; Oxnard Beet Sugar Company, Grand Island, Neb., 2,500 acres; Norfolk Beet

Company, Norfolk, Neb., 2.500 acres; total, six factories, 13,000 acres. In these places the soil is fully as well adapted to beet culture as is that of the best districts in Europe. The Europeans by long experience have discovered the best kind of beet for the purpose, and they have perfected the machinery to be employed in converting it into sugar. Our American beet sugar refineries have turned out as fine sugar as any produced, both in appearance and in saccharine qualities. One sample deposited in the office of the Commissioner of Internal Revenue is of the purest white and polarized at 99½ degrees. The industry will benefit many people. The beet cultivation gives employment to great numbers of men, women and children. Last summer the farmers in the vicinity of Norfolk, Nebraska, grew beets on 2,370 acres and employed a thousand persons, some of whom earned as much as $2 25 a day. It is estimated that when fully established the factory there will pay for beets in one season from $100,000 to $150,000, and that the beet growers will pay the workers $25.000 to $50,000. The yield is twenty tons an acre and the average price is $4 a ton. The profit offered in beet cultivation is greater than that of cereals. The refiner is certain to make a good profit. It is not all improbable that after a few years the production of beet sugar will rank next in importance to the crop of cereals in the United States.

ELECTRIC LIGHT.

THE NEED OF SHADES FOR PROTECTING THE EYES.

A correspondence is just now being carried on in the columns of a London daily paper discussing the injurious effect of the electric light on the eyesight. This is becoming rather a trite subject, and that it is so often brought up in the newspapers is probably due solely to the fact that the incandescent lamp on account of its harmlessness is not treated with the wholesome respect inspired by a flaming gas-jet or a glaring lamp. People place incandescent lamps on a level with their eyes and within a foot of their noses simply because the small amount of heat which they give out does not absolutely prevent them from doing so. Then in a short time they complain that the electric light is harmful to the eyes. The great advantages which the incandescent lamp possesses over other illuminants—those of absence of smell and vitiation of the atmosphere and small development of heat—are the very qualities that have aided in giving it a bad reputation in regard to its effect on the eyesight, but it is indisputable that this result has only been reached through lack of common sense on the part of many users of the electric light In the discussion referred to one correspondent said that, whether shaded or not, the light from an incandescent light caused him great distress. It is difficult to believe that a properly shaded light of any sort could have this effect unless the person complaining were afflicted by some premature weakness of the eyes. The London *Electrical Review* says that it may be reasonably admitted that to allow the unshaded filament to shine directly on the eye must have bad results; the same would be true, though perhaps in a lesser degree, of any other form of artificial light. It is thought by a high authority in those matters that it hurts the eye more to look directly at a 16 candle-power incandescent lamp than to look at a gas flame of similar power. With the gas flame the luminous image on the retina covers more surface than it does with the incandescent filament, and consequently the intensity of light on the points covered is greater with the electric light. As the *Review* further points out, it seems that most people are reasonably careful with their lamps, because taking into consideration the wide-spread use of the incandescent light, really well-grounded complaints of injury to the eyesight are very few. The main question resolves itself into one of properly shaded lamps; there is no doubt that a properly shaded incandescent lamp cannot harmfully influence a fairly healthy eyesight.

BUSINESS NOTES.

AN INTRODUCTION to the through car service of the Wisconsin Central Lines and Northern Pacific Railroad is unnecessary. Its advantages and conveniences have been fully established. It is the only route to the Pacific coast over which both Pullman Vestibuled first-class and Pullman Tourist Cars are operated from Chicago via St. Paul *without change*. Through train leaves Chicago every day at 10.45 P. M. The traveler via this route passes through the most picturesque, interesting and prosperous belt of country in the Western World. There is scenery with most striking contrasts that range from the rolling prairie and the pine forest level to the wildest passes of the wildest mountains in the world. There is a series of the noblest cities, towns and villages of every variety and size, from the hamlet or the tiny farm, upward; the richest mines in the world; the greenest and most lasting pasturage; the wildest scenery on the continent; canons as weird as a nightmare; hills, snows and peaks startling in the magnificence of their beauty, and a perfection of comfort in traveling that has never been surpassed. Fast train via the Wisconsin Central Lines for St. Paul, Minneapolis, Ashland and Duluth leaves Chicago at 5.00 P. M. daily with Pullman Vestibuled Sleepers and the Central's famous dining cars attached.

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MEDICAL ANNUAL.

E. B. Treat, Publisher, N. Y., has in press for early publication the 1892 "International Medical Annual," being the tenth yearly issue of this deservedly popular work. Its corps of thirty-five editors are specialists in their respective departments, and have been carefully selected from the brightest and best American, English and French authors. It is the embodiment of what is worth preserving of the current Medical Journals of the world for the year, and will contain over 6,000 references to diseases and their remedies. The service rendered the profession by this Annual cannot be overestimated, and it is an absolute necessity to every Physician who would keep abreast with the continuous progress of practical medical knowledge. This Index of New Remedies and Dictionary of New Treatment, epitomized in one ready reference volume at the low price of $2 75, make it a desirable investment for the busy practitioner, student and chemist.

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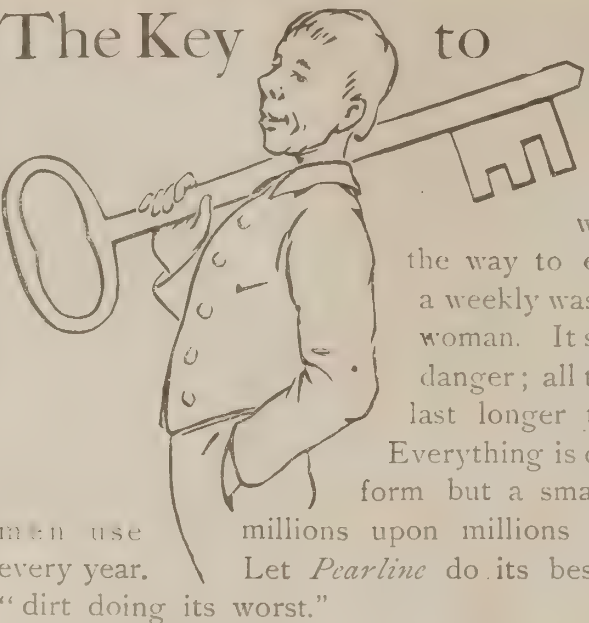

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Turn the Key

On the peddlers and grocers who tell you "this is as good as," or "the same as" Pearline. IT'S FALSE; besides, Pearline is never peddled.

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JAMES PYLE, New York.

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What Dreams Mean.—To dream of a goose, implies sitting for your picture. To dream of heaps of gold, indicates misery and avarice; a few pieces, honesty and industry. To dream of children, portends a serious diminution in your income. To dream of a knave, implies meeting an old acquaintance. To dream of being an idiot—(this is a thing a person never dreams of)! To dream of seeing a king or queen, denotes a great disappointment. To dream of seeing the devil, implies a visit to your lawyer. To dream of reading romances, indicates loss of time. To dream of catching a weasel asleep, indicates great cleverness. To dream of catching fleas, is to overcome your enemies. To dream of flattery, indicates sickly appetite and want of taste.

Smoking Boys.—A certain doctor, struck with the large number of boys under fifteen years of age whom he observed smoking, was led to inquire into the effect the habit had upon the general health. He took for his purpose thirty-eight boys, aged from nine to fifteen, and carefully examined them. In twenty-seven of them he discovered injurious traces of the habit. In twenty-two there were various disorders of the circulation and digestion, palpitation of the heart, and a more or less marked taste for strong drink. In twelve there was frequent bleeding of the nose; ten had disturbed sleep, and twelve had slight ulceration of the mucous membrane of the mouth, which disappeared on ceasing from the use of tobacco for some days. The doctor treated them all for weakness, but with little effect until the smoking was discontinued, when health and strength were soon restored.

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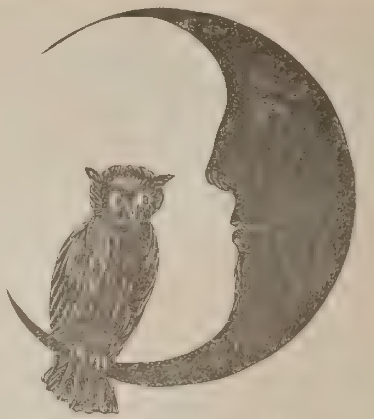

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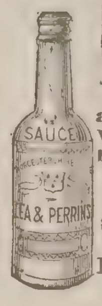

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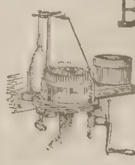

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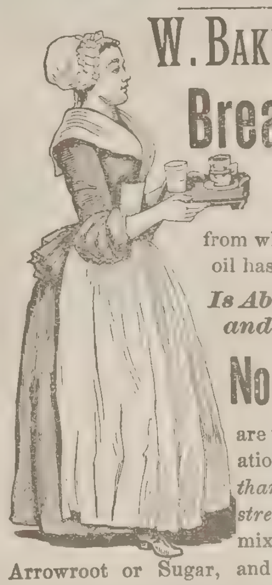

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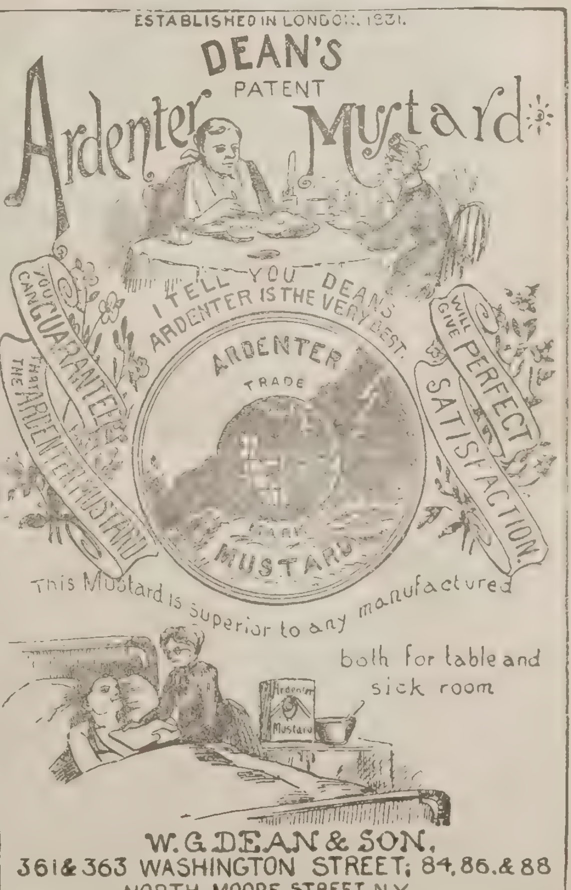
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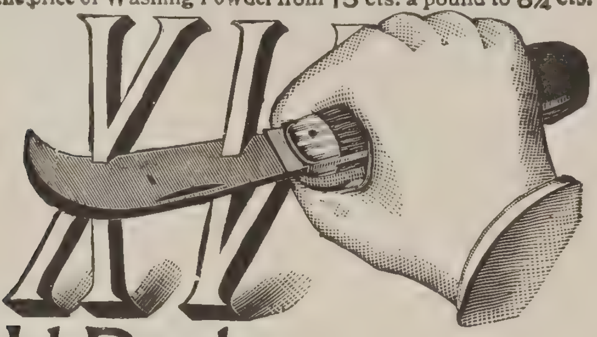

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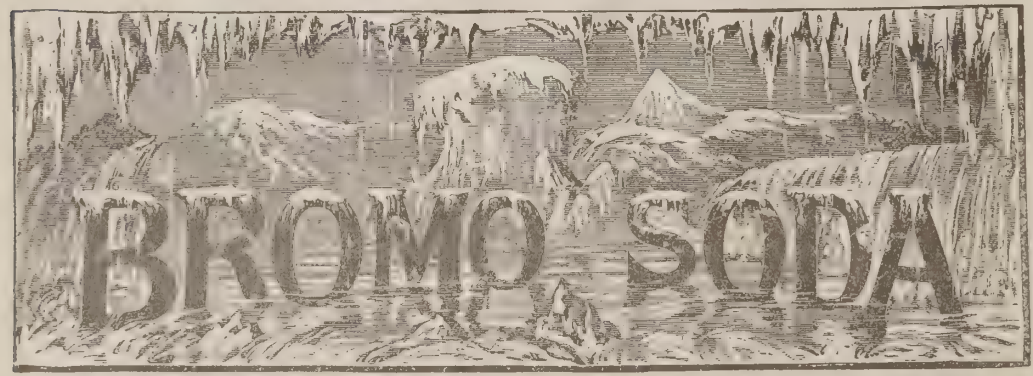

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CONTENTS.

Bock Beer 30
Bright Stories
  The King's Stratagem 29
Chinese Cooks 28
Correspondence 31
  Crystallized Sugar; The Grippe
Domestic Dietetics 31
Editorials 25
  Bacilli in the Soup; Impure Air; Novel Preventive of Sea-sickness; The Medium of Contagion in Influenza; Poison in Canned Vegetables; Beware of Brass Thimbles.
Electricity and Plant Life 26
Famous Company 28
Full of Fossils 27
Ice Calorimeters 30
Kid Gloves 27
Planetary Chain 28
Red Wine 26

BACILLI IN THE SOUP.

We do not intend to perpetrate slang. In this case the bacilli infect the soup. We quote from a writer in the *British and Colonial Druggist*: "The danger of eating certain kinds of tinned and preserved meats, especially those liable to rapid fermentation, is now well known. Several deaths have recently been reported due to this cause, and too much care cannot be exercised in eating this kind of food during the present season of the year. Another damage has recently been brought to light, and one that cannot be too widely known. The preparation of the compound called "stock" is well known to most housewives and those who know anything about cooking. It is usually composed of the odds and ends of all kinds of food that have been left, which are put away by cooks and preserved in large jars. These are occasionally not used up for some length of time. The compound is largely employed in the kitchens of hotels and restaurants for making soups, gravy and other savory adjuncts to the gastronomic art. From a recent investigation of certain samples of pork and gravy stock, Dr. Klien has discovered that a bacillus is found in the latter. He succeeded in obtaining the organisms from the lungs of mice that had been fed on the stock, which on the second day had developed severe intestinal disturbance and congestion of the lungs. He describes the bacillus as being in the form of threads or rods of various lengths, of which he was able to make cultivations. Cooks should be warned that stock ought to be kept in jars from which the air can be excluded, and should not be used after it has been kept longer than three or four days. The very composition of the compound renders it a suitable medium for the development of micro-organisms, which when taken into the system may do an incalculable amount of harm." This caution is important and deserves heeding.

◆

IMPURE AIR.

We believe that it is an established fact that impure air is a prime factor in the development of tuberculosis. To tell the truth, people seem to avoid pure outdoor air as if it were poisonous. They take the greatest pains to shut it out of their dwellings, public halls, churches, schools, places of business, street cars, railway carriages, theatres and other buildings, public or private. So that wherever we go or stay the same thing is to be met—foul air. We speak of the savage as filthy, wanting in neatness and cleanness, but the great difference in this respect between ourselves and these people is that their filth is mostly on the outside, on the exterior of their bodies; whereas we take our impurities directly into the lungs, and from these into the circulation. We are careful not to drink from a cup that has touched the lips of a child with a dirty face, but we do not hesitate to breathe into the lungs air that is freighted with foul human excretion, the debris of the vital organism; moreover, these organisms are often steeped in tobacco, whiskey and other noxious substances. Worse yet, we live in an atmosphere that has been breathed over and over again, not only by ourselves but by persons, it may be, whose bodies are one mass of disease and corruption.

◆

NOVEL PREVENTIVE OF SEA SICKNESS.

A. G. Greenhill, F.R.S., communicates to *The Engineer* some suggestions which he thinks if adopted will lessen the liability to or entirely prevent sea-sickness. His description of the method is in brief as follows: By vaccination we produce an artificial smallpox which wards off the real disease; and similarly, if we can produce mild sea-sickness on shore, it is reasonable to expect that comparative immunity will be secured at sea. By means of a full-sized cross-section of a ship, suspended by the meta-center, and properly weighted, we can imitate exactly the rolling of a ship, and thus have a swing calculated to produce exactly the same internal sensations. An ordinary swing is useless for the purpose, as the body is then in the neighborhood of the center of oscillation, where the disturbing effect is nil, or nearly so. It is requisite to have the full-sized ship section, so that we can recede some distance from the center of oscillation, on the upper decks, and even up on a mast, so as gradually to accustom ourselves to the varying internal sensations. As a cure is impossible, we must seek for prevention, and this prevention can be attained by a little preliminary practise on land, by mounting into a swing (or meta-centric cradle), made to imitate, to full scale, the cross-section of a ship, and made to imitate the rolling by being suspended from the meta-center; here the entry door could be made so that passengers could enter and leave at pleasure. An hour or two in such a swing, gradually increasing the motion by mounting away from the center of oscillation, with the knowledge that escape was always possible, Mr. Greenhill thinks, would go far to inure passengers to the real motion of the sea.

◆

THE MEDIUM OF CONTAGION IN INFLUENZA.

Dr. Pfeiffer, Professor Koch's son-in-law, who has discovered the influenza bacillus, says he believes that the sputum of persons suffering from influenza is the medium of contagion in that disease. Dr. Pfeiffer presented a report on his discovery at the meeting of doctors in the Charity Hospital to-night. He said that he had discovered minute bacilli in the sputum of twenty-four patients suffering from influenza, and that he had inoculated monkeys and rabbits with a cultivation of the organism, with positive results. Dr. Canon, of the City Hospital, also made a report. He had examined twenty patients, and had discovered the bacilli in the blood of seventeen. Professor Koch examined the specimens and the methods of investigation pursued by the two doctors, and established the identity of their results.

◆

POISON IN CANNED VEGETABLES.

Dr. H. W. Weber, according to *Industries*, has analyzed a large variety of tinned fruits bought at random, and finds they all contain poison. His attention was called to the matter by the illness of two people who had eaten tinned pumpkin. He tested tins of pumpkin, tomatoes, "Hubbard squash"—whatever that may be—peas, mushroom, blackberries, salmon, pears, peaches, cherries, sweet potatoes, beans, milk and pineapples. The milk was pure. All the rest contained poison, the tin, taken as chloride, varying from one-half to five and one-quarter grains per pound.

READ PAGE 34.

BEWARE OF BRASS THIMBLES.

A doctor at one of the Berlin hospitals reports a case of a woman suffering from poisoning, caused by using a common metal thimble to sew with, when she had a slight scratch on her finger. The thimble was found on examination to have two or three small spots of verdigris inside. A silver thimble should, if possible, be used, or, if that is too expensive, a steel one.

ELECTRICITY AND PLANT LIFE.

IS ACTINISM A SPECIES OF ELECTROLYSIS?

The following is a paper read before the electrical section of the Franklin Institute, by Prof. Edwin J. Houston : In the present paper I have arranged and amplified the substance of the informal remarks made at the last meeting of the section concerning the possible identity of actinism in the growing leaf, when exposed to the sunlight, and electrolytic decomposition. In the growing leaf, in sunshine, a series of complex decompositions occur, which result finally in the deposition of carbon and the evolution of free oxygen. Assimilation in plants consists, with few exceptions, in a process of deoxidation. The food materials absorbed by plants are generally highly oxidized substances, which are deoxidized during assimilation. This assimilation takes place mainly in cells containing chlorophyll, and this, almost without exception, occurs only in the presence of sunlight. Sachs, in his *Text-Book of Botany*, says: "It is only the cells that contain chlorophyll, and these only under the influence of sunlight that have the power of decomposing the carbon dioxide taken up by them, and, at the same time, setting free an equal volume of oxygen in order to produce organic compounds out of the elements of carbon dioxide and water ; or, in other words, to assimilate." In nearly every species of plants the leaf is presented with one of its faces towards the sunlight, so that one face is illumined and the other non-illumined ; or, at least, the illumination of one face exceeds the illumination of the opposite face. This latter is especially the case with leaves that are formed of comparatively transparent substances. That differences of potential exist in the various parts of a growing plant is a fact that is now generally recognized. Too little, however, has been done in this direction to ascertain the exact character of these differences of potential. Probably one reason so little is correctly known to-day concerning the differences of potential of growing plants, arises from the fact that such differences of potential can be brought about by so many different causes that probably the differences of potential arising from one cause or set of causes, mask or neutralize those produced by another cause or set of causes. I desire in the present paper briefly to call attention to another probable source of difference of electric potential, that may still further mask or render difficult of detection the differences of potential existing naturally in growing plants. Before doing this, however, I will briefly review some of the more important causes which produce differences of potential in growing plants. The principal of these are as follows, namely : 1. Various chemical processes that occur in the cell walls of the growing plant. 2. Molecular movements of liquids throughout the plant which result in the production of diaphragm currents. These molecular movements may either be those caused during the growth of the plant, or may be caused by the mere bending of the plant by the wind, or other cause external to the plant. 3. Differences of potential developed in plants which would result in currents of the general character of the demarcation currents observed in animals ; that is, currents due to the chemical action of the various liquid materials exuded at the surfaces of injured or abnormal plant tissue. 4. Differences of potential due to the evaporation of moisture from the surfaces of the leaves, derived either from the rain or dew, or from the evaporation of liquid substances given off from the body of the plant. 5. Differences of potential arising from the electrolytic decomposition of carbonic acid, or the various forms which carbonic acid derivatives assume during assimilation. The causes above enumerated refer to the differences of potential that have their seat in the structure of the plant itself. Another source of differences of potential is to be found in the differences of electric potential that generally exist between the atmosphere that surrounds the plant and the earth or soil in which it grows. These differences of potential being neutralized in the various parts of the plant itself, would, of course, result in the production of electrical currents. I desire to call special attention to the fifth head, under which I have classed differences of electric potential in plants, viz., those arising from the electrolytic decompositions of the various oxygenated carbon compounds derived mainly, if not entirely, from the carbonic acid of the atmosphere. That the action of sunlight on growing plants should partake of the nature of electrolytic decomposition is, perhaps, to be inferred from the general views now held in accordance with Hertz's theory as to the identity between sunlight and electro-magnetic radiations or waves. These remarks should be regarded merely as suggestions made in the line of further investigations. As far as our knowledge of growing plants extends, the oxygen which results during the general process of deoxidation, under the influence of sunlight appears to be evolved mainly from the non-illumined or darker face of the leaf, while the carbon of the less highly oxidized carbon compounds, which are utilized by the plant for the production of its woody fibre and woody tissue, though afterwards deposited in all parts of the leaf, are probably mainly liberated at or near the illumed face. If these facts be as above mentioned, the decomposition in the leaf, under the action of sunlight, of the carbonic acid, or its derivative compounds, probably partakes of the nature of electrolytic decomposition. In this direction I would suggest the following lines of investigation, namely : 1. To ascertain experimentally whether there exists on the opposite faces of a growing leaf, when exposed to the full action of sunshine, a difference of electric potential resulting from the polarization which always accompanies electrolytic decomposition ; and if be so, what is the nature of such polarization. If such differences of potential actually exist, it would, of course, follow that the illumined face of such leaves, under polarization, would be mainly a electro-negative, since it is at or near this face that the carbon less highly oxidized carbon compounds appear, while the dark or less illumined face would be electro-positive, since it is here, for the greater part, that the oxygen is liberated. 2. Whether electrodes suitably connected to the opposite faces of a growing leaf in the presence of sunshine, will show the presence of an electric current arising from an equalization of the difference of electric potential. The value of these differences of potential on the opposite faces of growing leaves, might, of course, be ascertained by the proper use of an electrometer. 3. Whether a suitable leaf battery could not be devised, by connecting, in alternate succession, the opposite faces of a series of leaves on a plant stalk. That is to say, connect the illumined face of one leaf with the non-illumined face of another leaf, and so on in series until any feeble differences of electric potential that there might exist are sufficiently multiplied to sensibly effect the needle of a galvanometer. 4. A comparison of the effects of sunlight and artificial light, such as the electric light, on such electrolytic decompositions. 5. Whether any differences exist in the case of the light produced by an alternating current arc light and that produced by a constant current arc light. 6. Supposing the presence of the differences of electric potential due to the electrolytic decomposition to be established, and the direction of the electric currents so produced known, to ascertain whether an electric current led through the plant in the same direction as the current produced by actinism would not tend to increase the assimilation and the subsequent growth of the plant; and, whether, on the contrary, an electric current sent in the opposite direction through the growing leaf would not tend to check such assimilation or growth. According to some experiments recently made in France, it was shown that electric currents sent through plants under certain circumstances promoted growth. These currents were sent through the soil in which the plants were growing by electrodes placed in the soil. The nourishing substances in a quantity of manure, placed near one of the electrodes, were clearly carried in the line of the current, or between the electrodes. 7. To ascertain experimentally whether the converse of the proposition is true, namely, whether an electric current of approximately the same strength as that produced by actinism, when sent through the leaf in the opposite direction, would not result in the production of luminous phenomena in the leaf. The following facts, well recognized in botany, would seem to show, to some extent, at least, the presence of a species of polarization in certain plants during active growth in sunshine. In the case of those plants which bend or become concave on the side the most exposed to light, this curvature is due to the fact that a smaller growth occurs on the illumined than on the dark side. This is well recognized in botany, and such plants are called in general *heliotropic* plants. Since they are for the most part highly transparent, considerable light must therefore pass through their entire structure, and the difference in the illumination between the light and dark faces must be comparatively slight. This shows that such differences in growth may occur under comparatively small differences of illumination. In the case of plants that turn toward the sun, is is a well-known fact that some plants turn towards the light. It is possible that this motion is in some manner the result of the polarization effected, during growth, by the sunlight.

RED WINE.

HOW TO SERVE IT PROPERLY ON THE TABLE.

Any one who desires to drink a good glass of Medoc or Burgundy will not decant it till almost the moment it is required, thus preserving the freshness of the aroma, and as there is more or less sediment in all fine clarets and Burgundies, decantation is, as a rule, advisable, although the custom of bringing the wine to table "cradled" in original bottles is largely adopted in first-class restaurants. Good wine needs no bush ; but in our climate (which, by the way, the experts of the Medoc declare the best possible for storing fine wines) it is better for a little warmth. Rather than drink red wine in the Winter months drawn from a cellar in which the temperature has not been maintained at a desirable pitch, it is better to put the wine where it may feel the fire. A better way still is to leave it on the mantelpiece of the dining room for four or six hours before it is to be decanted, when it will have an opportunity of acquiring something like the temperature of the room. It is well worth while warming the decanter before pouring in the wine, so that it may not receive the shock of contact with the cold glass. Some hosts possessing red wines that deserve better treatment actually serve them up cold out of the cellar, a barbarity equaled only by bringing in the fish half done or the soup lukewarm. In such emergency, Providence has supplied man with an effectuall remedy for the oversight. The palm of the hand closed round the filled glass will, if the glass is thin, as it should be, speedily brings the wine to the desired temperature.

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FULL OF FOSSILS.

A REMARKABLE PHILADELPHIA COLLECTION.

The most remarkable house in the United States is at No 2102 Pine Street, in Philadelphia. It is occupied by Professor E. D. Cope, the distinguished paleontologist, and is filled from top to bottom with fossils. There are enough extinct beasts, birds and fishes in the building, if they could only come to life again, to form a procession extending in an unbroken line from Wanamaker's to Trenton, N. J. Every room is stacked from floor to ceiling with wooden and pasteboard boxes containing bones of creatures big and small, the most recent of which died hundreds of thousands of years ago. All the closets are fairly stuffed with skeletons. The parlor is occupied by a reptile seventy feet long. That is to say, the skull of the vast brute is there, with the shoulder-blades and the neck, but the rest of him extends through the hallway and out into the back yard. There is not space to put him together in proper shape, and so the vertebra of the backbone are packed in a series of drygoods boxes. Each box is four feet cube and holds one vertebræ. The bathroom, appropriately enough, is chock-full of fossil fishes, while the dining-room is tenanted by a herd of ancient rhinoceroses. These latter, by the way, appear to have no horns on their noses and to have been quite harmless. This is one reason, doubtless, why they were wiped out. The Professor has the second story front room for his bed-chamber. He sleeps there when it does not happen to be convenient for him to go out to his beautiful residence at Germantown. The bed, dressing-table and washstand are crowded together in the middle of the apartment and surrounded on all sides by stacks of boxes, all of them filled with fossils. Scattered about the floor and piled up in the corners are various fragments, such as the jaw and shin-bone of a mastodon, the pelvis of a mammoth, some vertebræ that once belonged to a whale, the humerus of an extinct species of hippopotamus, and so on. In the closet are what the owner calls his "babies"—huge fossil batrachians from Texas, which in life resembled gigantic frogs with short tails. Each of them was ten feet in length, and it may be surmised that their jumping powers were something phenomenal. However, there is a much bigger one down-stairs, which measured fifteen feet. These surprising creatures must have been very plentiful at one time, judging from the quantity of their remains that are dug up, and a few hundred thousand years ago they might have been seen hopping about all over the region mentioned. Another closet in the entry on the second floor contains a quantity of what is called in Texas "fossil brushwood." It is dug up quite plentifully in some parts of that State, being regarded as a curiosity, although the natives are not aware of what it is in fact—namely, the spiny frills that grew like fins along the backs of giant lizards which lived in the distant Permian epoch. They were among the earliest reptiles that inhabited the world, being the ancestors of the saurians of the Mesozoic, or Age of Reptiles, which came after. In fact, some evolutionists assert that man is descended through these very beasts. They grew to be about fifteen feet in length, with spines four feet long, although their vertebræ were no bigger than a sheep's. There were related species which had extraordinary back fins with cross-pieces like the masts and yard-arms of a ship. All of them were carnivorous and exceedingly fierce. The vast numbers of them which existed anciently in Texas must have rendered things decidedly unpleasant for most other occupants of that part of the country. In the parlor is also the skull of a hadrosaur, about four times as big as that of the largest crocodile. When it was alive, from three to five millions of years ago, this remarkable lizard was at least thirty feet long and stood perhaps twenty feet high as it waded kangaroo-fashion, in its customary manner, through the ocean shallows and browsed upon the sea-weeds which formed its diet. The skull has two very striking features. One is the teeth, still perfect, which are two thousand in number and are arranged in magazine fashion for grinding the vegetable food. No other sort of animal, living or dead, ever possessed so extraordinary a dentition. The other surprising point is the jaws, which are prolonged and shaped in front like a duck's bill, flat and rounded, so that they could pick up kelp and such fodder in the manner of a pair of enormous salad spoons. There is hardly room on the lower floor, however, for much besides the bones of the seventy-foot camarasaurus above referred to. The hallway, pantry and kitchen are obstructed with great dry goods boxes containing sections of its backbone; the tail is stacked up all over the back yard, and the long neck and skull crowd the parlor as full as it will hold. A single vertebra of the neck is three feet across, and there are ten of them. They, as well as those of the back, are all hollow, and originally served, being filled with warm air from the lungs, as floats to support the body of the animal, as it waded in deep water to cover its back along the sea-shore. It also fed on sea-weeds. Some of the most interesting remains in the third story back are those of giant crocodiles of the Mesozoic. Their skulls exhibit a very interesting peculiarity, the nasal opening being set back so far as to be just in front of and almost between the eyes. This was a provision of nature to enable the creatures to breathe while thrusting their snouts far down into the mud, whence they pulled out with their teeth mud-fishes, and invertebrate animals such as crinoids—the "sea lilies," which, although of an animal nature, imitate most beautifully in their appearance the blossoms after which they are named. Standing up against the wall in the same room is a huge slab cut out of the solid rock, which Professor Cope calls a "garden of stone lilies." This slab, in fact, was once a portion of the bottom of the ocean, and a bed of crinoids growing upon it became covered over with a layer of mud. The mud preserved them, turning gradually to rock, and the receding waters left this pretty flower garden preserved for ages between the strata of a hill. Piled up in boxes on every floor, stacked in the corners and scattered along the hallways, are the fossil remains of monstrous flying, swimming and armor-clad reptiles of past epochs; likewise mammals enough to stock a score of more wonderful menageries than Barnum ever advertised, and extinct birds in flocks. Among the curiosities are bones of a newly-discovered extinct bird that used once upon a time to dwell in Patagonia. It was not less than ten feet high and had an enormous beak. One of the most precious relics in the whole collection is a little scull not bigger than a squirrel's. Small as it is, it has supplied to the satisfaction of the evolutionists one of the missing links in man's descent through marine worms and fishes, reptiles coming after, and mammals being developed from the latter stock in the course of ages. Anatomists classify animals by their teeth more accurately than in any other way, and the jaws of this small lemur, which connects the anthropoid apes, like the chimpanzee and gorilla, with beasts not so high in the scale of creation, are provided with a dentition so astonishingly human-like that one might well imagine the teeth to be actually those of a miniature man. Molars and incisors are shaped and placed in exactly the same way, and the canines, two in the upper jaw and two in the lower, correspond perfectly with the human type. Right here it is worth mentioning that there has recently come from Patagonia announcement of the discovery of a monkey of the Tertiary, which was the geological period before the present or Quaternary, which is the last needed link between the lemur just described and the man-like apes. It only remains now, in order that the chain shall be complete to find the link between the anthropoid apes and man. This is the famous missing link concerning which so much speculation has been offered. Evolutionists assert that it will undoubtedly be found before very long. For the fact that it has not already been discovered they offer very plausible reasons. The way in which animals are preserved in fossil shape is by falling into the water and becoming imbedded in the muddy bottom. A sufficient time has not yet elapsed for coming across the remains thus preserved of the ancestors of the human race intermediate between the apes and the present generation. The history of the world is a story of continuous retreat of the waters from the land—rivers drying up, lakes becoming shallower, and seas receding from the continents. Let it be supposed that 500,000 years ago tribes of the missing links lived upon the earth. Necessarily very nearly all of them, in dying, would disappear; not even their bones would be left; but some few would be drowned in the lakes, or their bodies falling into the streams would be swept into the larger areas of water, becoming on occasions entombed in the mud at their bottoms. In the course of time, the water having gone away, that mud is transformed into rock. It appears as dry land, and then, for the first time the fossil hunter comes along and makes his discoveries. Thus it will happen, within a few centuries at the farthest, that missing links will be dug out from more places than one, the vanished waters having disclosed the resting-places of their remains, and thereby will be established in its entirety the chain which connects that most wonderful of animals, man, with the bit of primordial protoplasm from which he is sprung.

KID GLOVES.

WHEN INVENTED AND HOW MADE.

Homer speaks of Laertes as having worn gloves to protect his hands in gardening. Xenophon also spoke of one of his contemporaries as going without gloves, mentioning the fact seemingly as a singular incident in every-day life. There is a very old custom regarding the binding of contracts by the gift of a glove; from this is supposed to have emanated the custom of throwing down a glove as a challenge, which the opposite party accepts by picking up the glove and throwing down his own. This custom originated in England about the year 1245. Gloves were originally considered an object of special regard. They were made in the most costly manner, ornamented with precious stones, and worn by kings and other representatives of royalty. Gloves were used in the bestowals of lands; to take gloves from a person was considered a mark of special degradation. Ladies gave their gloves to their lovers, which the latter wore in their helmets as a mark of honor to the donors. Some curious customs have obtained for years in the way of taking off gloves when entering the stable of a prince, or in giving them to the servant. In hunting, the same rule obtains at the death of a stag. Glove money, in the usual acceptation of the term, means money given to servants to buy gloves with. Embroidered gloves were made as early as 1580. It is an old custom to present one with a pair of gloves who has rendered another some service; at one time such a presentation was considered a mark of special favor and regard. The art of glove making is found in its greatest perfection in France, the manufacture of kid gloves being one of the most important industries in that country. The English, who make much heavier gloves, import a great number of kid gloves from Paris. It is a well-known fact that cheaper varieties of gloves are made from the skins of lambs and rats. as there could scarcely be slaughtered enough kids in the civilized world to provide skins for the manufacture of the large number of so-called kid gloves that are worn the world over by persons of refinement. England imports the skins of opposums from Australia for the purpose of glove making. The really first-class kid gloves that are made in England are sold under the name of French manufacturers, because the French long since attained a world-wide reputation as kid glove makers, and therefore no other glove will sell as well. Great skill is required in the cutting of gloves from skins. The latter are first stretched on marble slabs and rubbed with a blunt knife. Skins are first cut lengthwise through the middle, and the single strip for the palm and back are next cut off from one end of the half skin. The pieces for the thumbs, gassets, etc., must come out of the same skin, or one exactly like it, and greatest care is exercised in order that no material shall be wasted, and that the pieces shall be cut to the best possible advantage.

CHINESE COOKS.

THE SERVANT QUESTION FROM A CALIFORNIA POINT OF VIEW.

Not long ago a daily paper announced that the Chinese cooks in this vicinity had formed a union with a view to raising wages. The statement was based on imperfect information. There has always been a sort of guild or union among Chinese house-servants, and no new combination has been attempted or proposed. The union is not so stringent as the white labor unions, and does not propose to regulate wages. Some of its members get $30 a month, and others, not more skilled, get $60. With that the union does not meddle; every cook makes the best bargain he can for himself. When the Restriction act reduced the supply of Chinese, those who were here raised their demands; cooks who had been getting $20 a month insisted on $25 a month, and got it. When the Scott act went into effect and shut off the supply altogether, good Chinese cooks became really scarce and obtained without difficulty $30 and $35. Rather than part with a valuable servant persons of means have paid as high as $40 and $45 within the past two years, and garrison messes in the country have paid fancy wages of $60. It is simply a question of supply and demand. By the way it is odd to notice that the Chinese displayed more foresight in the matter of the Exclusion bill than other foreign laborers in this country. The Chinese here did not oppose it, but on the other hand favored it, because they saw that it would reduce the supply and hence increase the demand for their services. Other foreign laborers here stubbornly oppose the restriction of foreign immigration, although its entire exclusion would largely increase their revenue from their only commodity—their labor. There are very few callings in which a member of the servant class can make $1.25 or $1.50 a day with board and lodging. But the source from which house-servants have usually been recruited—young females—appears to have dried up. As a rule, young women in San Francisco will not go out as house-servants. They prefer to work as shop-girls or operatives in factories. The remuneration is less, but the freedom is greater, and the girls want to have the privilege of taking a day off if they please. It may be bad judgment, but it is a question which the girls have the right to decide for themselves. The anomaly is not confined to San Francisco. In the Eastern cities the same complaint of a scarcity of female help is constantly heard. The wages of an ordinary house-servant—who is not a skilled cook—have risen in New York and Chicago within the past twenty years from $3 a week to $20 a month, and even at this price it is difficult to get a really good servant. In the East the ranks of house-servants have usually been filled by immigrants from Ireland, Germany and Scandinavia, but as the country fills up this supply proves inadequate to meet the demand. As to girls born on this soil, in the East, as here, girls prefer close, unhealthful work in shops and factories at low wages—which involves poor food and poor quarters—to healthful occupation in households, where there food would be abundant and nutritious and their lodging comfortable. A corner in house-servants impends in the cities on both sides of the continent. No such crisis has ever occurred in Europe. All over that continent the children of the poor go out cheerfully to service; there is no country which needs to import its servants from abroad, and the business of household service has been so reduced to a system that the native servants are generally very efficient. That may come to pass in this country, also, if ever the general condition of life in the United States assimilate to those which prevail in Europe. In the mean time the evils of the present situation would be mitigated if our women, both in high and low station, educated themselves better in the practical business of conducting a household. In this community girls marry without the remotest notion how to manage a house or cook a meal. They cannot even clean a room or judge when it is has been properly cleaned. They are generally ignorant of the first principles of ventilation and sanitary drainage. As to cooking, there is hardly a girl whom one meets in "society" who can grill a chop or make an omelet. And their ignorance is diffused through the poorer class. A girl who has had no experience in household work is absolutely useless. It is discomfort to occupy the rooms of which she has charge; it is death to eat the food she cooks. To make that girl earn her wages, she must be taught her business from the ground up; and if her mistress does not know how to cook or how to keep a room in order, how can she teach the maid? If a young woman of good family marries a merchant he generally knows how his subordinates should transact his business; if she marries a lawyer he understands how his clerks should conduct the affairs of his law-office; if she marries a private gentleman of means and leisure, he knows how his fortune should be managed. But the young woman of good family rarely knows anything at all of her part of the partnership—to wit, the managing of the household—and many young women of good family are prone to say with gentle pride that they know absolutely nothing of cooks.

A FAMOUS COMPANY.

THE OLDEST SOCIAL ORGANIZATION IN AMERICA.

The oldest social organization in America is "The Fishing Company of the State of Schuylkill," which reached its one hundred and sixtieth birthday, on October 10, 1891. At a former anniversary the Prince of Wales, in compliance with the society's method of entertaining its guests, officiated as a waiter, and the late President Arthur once helped prepare the dinner, which was cooked and served by the members and guests under the direction of the governor. The October meeting was called to order by ex-Governor John Wagner in exactly the same words used by Thomas Stretch, first Governor of the colony, in 1732. He then ordered Frank Field as caterer, and three assistants to prepare a bowl, of "fish house punch," according to the following formula, which has been followed by the club for 160 years: Rum, good, old and mellow, two parts; brandy, older the better, one part; water, clear and pure, one part; sugar one pound to each part, and one wine glass of peach brandy to each part." When the four gentlemen had mixed the punch to their own satisfaction, the company coroner, H. Carlton Adams, was ordered "to sit upon it." He impaneled a jury of three, and after the first brewing had been tested thoroughly the jury reported that the caterer was a fit and proper person to prepare punch, and that gentleman was forthwith, ordered to make a second brewing. Then Caterer Field summoned every freshman present to the kitchen, where each was, by a proclamation of the governor, compelled to don a straw hat and a long white apron of coarse material and assist in the preparation of the meal. The caterer and the apprentices did yoeman service on this occasion but each had to do something. When all was in readiness Caterer Field, after ringing a big bell, began the recital of an ancient proclamation bidding "all good and worthy members with their henchmen to enter and partake of such food and drink as can be found within, being careful to take them with good appetites." He concluded with the words: "God save our Colony." After which all entered the dining-room and sat down to the feast.

THE PLANETARY CHAIN.

THE THEOSOPHICAL SCHEME OF HUMAN EXISTENCE.

In the August issue of the *Theosophist*, published in Madras, India, we find the following discussion of Humanity, which our readers may accept according to their own views of the subject: "It is one of the postulates of ancient science that there is a Central Sun in the Universe, the heart of the great body of Cosmos. This may be called the microbe of the universal germ-cell granulates, and evolves into the perfect forms of its type; so does the universe, on its own stupendous scale, differentiate and evolve into its component systems. Strange enough it may seem, the study of the development of an insignificant germ-cell will teach the student of nature the genesis of a world or even of a universe. 'As it is above, so it is below.' And just as the germ-cell requires a certain energy to develop into a plant, an animal, or a man, so does every sidereal body require an energy to evolve it into its present stage of manifestation. This energy is called Fohat, the electro-vital force of the universe. Bearing, then, the facts of a Central Sun and Fohat in mind, we shall be able to understand the following from an ancient scripture: 'The Central Sun causes Fohat to collect primordial dust in the form of balls, to impel them to move in converging lines, and finally to approach each other and aggregate. . . . Being scattered in Space, without order or system, the world-germs come into frequent collisions until their final aggregation, after which they become wanderers (*i. e.* comets). Then the battles and struggles begin. The older (bodies) attract the younger, while others repel them. Many perish, devoured by their stronger companions; those that escape become worlds.' Here we are introduced to a veritable 'War in Heaven,' in which the 'Struggle for Existence' and the 'Survival of the Fittest' play their respective parts. Let us, however, remember that we are dealing with a metaphysical rather than with a physical universe, for the worlds we see are but the gross physical molecules of the outer shell of Cosmos, just as the physical body of man is but his outer 'coat of skin,' and not the real man. The universe and everything in it is septenary—that is to say, is composed of seven interpenetrating States of *Substance*, three of which are spiritual and four material. This one substance, if anything, is LIFE, and its constituent particles or atoms are the LIVES which 'live and have their being by consuming each other.' Hence they are called the 'Devourers'—these are the builders of everything in the Universe. The lowest, or outer and most material state of this substance is that visible and objective universe which we recognize with our physical senses; its other states are, therefore, metaphysical and subjective, or outside the range of our normal and physical perception. We have, however, only to deal with the four lower and material planes of this substance, the three higher, or innermost, being of a spiritual nature and entirely formless, and, therefore—as far as material consciousness is concerned—ineffable. These are the seven great cosmic elements or 'rudiments,' which must not be confused with the elements of the ancients, much less with the elements of our modern science For while even the elements of the ancient Grecian physicists were all on the lowest of these seven planes, or, in other words, were sub-divisions of the seventh cosmic element—while even of these they only know four, viz., their so-called Earth, Water, Air, and Fire, with a problematical fifth called the quintessence—the gross elements of our present science are all on the lowest of these sub-divisions again in their turn. The Earth, Water, Air, and Fire even of the 'Philosophers' were 'subtle elements' compared to the modern molecular army which Prof. Crookes is fast sweeping into the scientific dust-bin. Remembering, then, that we are dealing with processes which, as far as our solar system is concerned, occurred thousands of millions of years ago, the genesis of a sidereal body can be traced along a line of evolution. We can trace the evolution of a planet from its emergence from the *laya* or homogeneous state, through its various transformations, until it involves into the *laya* state again, which is the eternal and *normal* condition of Substance, differentiating only periodically, and being during that differentiation in an *abnormal* state—in other words, a transitory illusion of the senses. For just as the universe is out-breathed and in-breathed, so does the planet emerge from its world-germ to return again to its primordial state, after completing its spiral and cyclic path of evolution and involution. Like everything else in the universe, this planetary cycle is of a septenary nature, consisting of seven root changes of state, which may, for convenience, be called 'globes,' but should not be imagined to occupy different places in space, but rather be thought of as images to represent changes of state caused by the information of the nebulous and ethereal planetary matter, which involves from and involves into itself. These seven globes interpenetrate one another, although they are divided each from the other in degree, or state, just as the seven principles of man, or the seven planes of consciousness, are separated. What is to be remembered, however, is that it is a separation of state and not of locality. The globes are further informed, and their homogeneous matter differentiated and developed by a stream of life and consciousness, which cycles round the chain and produces all manifold forms of all the kingdoms of nature. This 'Monadic Host,' as it is called, circles round the chain seven times, each of such cycles being called a *Round*. As the life-wave leaves one globe and passes to the next, the globe that has just been quitted remains in *statu quo*, or in a state called 'obscuration,' until the return of the Monadic Host on the next Round. Thus we have seven globes or material states through which the Monads pass seven times, making in all forty-nine stations. Further, there are on each globe seven kingdoms, owing to the life-wave being also septenary; or, in other words, there are seven Monads or seven classes of in forming essences—one for each kingdom. Each kingdom goes through seven transformations on each globe, and thus, in the human, we find seven humanities succeeding each other on each globe. Each of these is called a *Root-Race*, which, after living thousands of thousands of years, transfers its life-principles into its successor. These *Root-Races* are again subdivided, and so the analysis proceeds, almost *ad infinitum*. The fourth globe holds an unique position in the planetary chain, so also does the fourth Round, the fourth Kingdom, and the fourth Race, etc. It is, as has been said, the point of balance of 'Ezekiel's wheel,' the battle-field on which the contending hosts of Spirit and Matter meet in almost equal conflict. We are told that this planet, of which our earth, its fourth globe, is the gross physical body, is in its fourth Round, and that its humanity is in its fifth Root-Race; we, therefore, see that we are just past the turning point of our cycle, and that the involution into Spirit is commencing. With each Round the earth is said to have developed a new element. In the first it was Fire; in the second, Air; in the third Water, etc. It should be steadily borne in mind that these 'Elements' are the substance of the cosmic planes of consciousness, and that our Fire, Air, Water, and Earth are not even the reflections of their shadows. Such is the bare sketch of a Planetary Chain, and the difficulty has been to condense the wealth of information that can be drawn from religion, science, philosophy, as well as from 'superstitions' and 'enlightenments.'"

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BRIGHT STORIES.

THE KING'S STRATAGEM.

In the days when Henry IV. of France was King of Navarre only, and in that little kingdom of hills and woods which occupies the southwest corner of the larger country was with difficulty supporting the Huguenot cause against the French court and the Catholic league—in the days when every isolated castle from the Garonne to the Pyrenees was a bone of contention between the young king and the crafty queen-mother, Catherine de Medicis, a conference between these notable personages took place in the picturesque town of La Réole.

La Réole still rises gray, time-worn and half ruined on a lofty cliff above the broad green waters of the Garonne, forty odd miles from Bordeaux. But it is a small place now. In the days of which we are speaking, however, it was important, strongly fortified, and guarded by a castle which looked down on a thousand red-tiled roofs, rising in terraces from the river. As the meeting-place of the two sovereigns it was for the time as gay as Paris itself, Catherine having brought with her a bevy of fair maids of honor, in the effect of whose charms she perhaps put as much trust as in her own diplomacy. But the peaceful appearance of the town was delusive, for even while every other house in it rang with music and silvery laughter, each party was ready to fly to arms without warning if it saw that any advantage was to be gained thereby.

On an evening shortly before the end of the conference two men sat at play in a room, the deep embrasured window of which looked down from a considerable height upon the river. The hour was late and the town silent. Outside the moonlight fell bright and pure on sleeping fields and long, straight lines of poplars. Within the rooms a silver lamp suspended from the ceiling threw light upon the table, leaving the farther parts of the room in shadow. The walls were hung with faded tapestry. On the low bedstead in one corner lay a handsome cloak, a sword, and one of the clumsy pistols of the period. Across a chair lay another cloak and sword, and on the window-seat, beside a pair of saddle-bags, were strewn half a dozen such trifles as soldiers carried from camp to camp—a silver comfit box, a jeweled dagger, a mask and velvet cap.

The faces of the players as they bent over the dice were in shadow. One—a slight, dark man of middle height, with a weak chin and a mouth as weak, but shaded by a dark mustache—seemed, from the occasional oaths which he let drop, to be losing heavily. Yet his opponent, a stouter and darker man, with a sword-cut across his left temple and that swaggering air which has at all times marked the professional soldier, showed no signs of triumph or elation. On the contrary, though he kept silence or spoke only a formal word or two, there was a gleam of anxiety and suppressed excitement in his eyes, and more than once he looked keenly at his companion, as if to judge of his feelings or learn whether the time had come for some experiment which he meditated. But for this an observer, looking in through the window, would have taken the two for only one more instance of the hawk and pigeon.

At last the younger player threw down the caster with a groan.

"You have the luck of the evil one," he said bitterly. "How much is that?"

"Two thousand crowns," replied the other without emotion. "You will play no more?"

"No! I wish to heaven I had never played at all!" was the answer. As he spoke the loser rose, and going to the window stood looking moodily out. For a few moments the elder man remained seated, gazing at him furtively, but at length he, too, rose, and stepping softly to his companion, touched him on the shoulder. "Your pardon a moment, M. le Vicomte," he said "am I right in concluding that the loss of this sum will inconvenience you?"

"A thousand fiends!" exclaimed the young Vicomte, turning on him wrathfully. "Is there any man whom the loss of two thousand crowns would not inconvenience? As for me—"

"For you," continued the other, smoothly filling up the pause, "shall I be wrong in saying that it means something like ruin?"

"Well, sir, and if it does?" the young man retorted, drawing himself up haughtily, his cheek a shade paler with passion. "Depend upon it you shall be paid. Do not be afraid of that!"

"Gently, gently, my friend," the winner answered, his patience in strong contrast with the other's violence. "I had no intention of insulting you, believe me. Those who play with the Vicomte de Lanthenon are not wont to doubt his honor. I spoke only in your own interest. It has occurred to me, Vicomte, that the matter might be arranged at less cost to yourself."

"How?" was the curt question.

"May I speak freely?" the Vicomte shrugged his shoulders, and the other, taking silence for consent, proceeded: "You, Vicomte, are Governor of Lusigny for the King of Navarre; I, of Créance, for the King of France. Our towns lie only three leagues apart. Could I by any chance, say on one of these fine nights, become master of Lusigny it would be worth more than two thousand crowns to me. Do you understand?"

"No," the young man answered slowly, "I do not."

"Think over what I have said, then," was the brief answer.

For a full minute there was silence in the room, The Vicomte gazed out of the window with knitted brows and compressed lips, while his companion, sitting down, leaned back in his chair with an air of affected carelessness. Outside the rattle of arms and hum of voices told that the watch were passing through the street. The church bell struck one. Suddenly the Vicomte burst into a hoarse laugh, and turning, snatched up his cloak and sword. "The trap was very well laid, M. le Capitaine," he said almost jovially, "but I am still sober enough to take care of myself—and of Lusigny. I wish you good night. You shall have your money, never fear."

"Still, I am afraid it will cost you dearly," the captain answered, as he rose and moved toward the door to open it for his guest. His hand was already on the latch when he paused. "Look here," he said, "what do you say to this, then? I will stake the two thousand crowns you have lost to me and another thousand besides against your town. Fool! no one can hear us. If you win, you go off a free man with my thousand. If you lose, you put me in possession one of these fine nights. What do you say to that? A single throw to decide."

The young man's pale face reddened. He turned, and his eyes sought the table and the dice irresolutely. The temptation, indeed, came at an unfortunate moment, when the excitement of play had given way to depression, and he saw nothing before him outside the door, on which his hand was laid, but the cold reality of ruin. The temptation to return and by a single throw set himself right with the world was too much for him. Slowly he came back to the table. "Confound you!" he said, irritably. "I think you are the devil himself, Captain."

"Don't talk child's talk!" said the other coldly, drawing back as the victim advanced. "If you do not like the offer you need not take it."

But the young man's fingers had already closed on the dice. Picking them up he dropped them once, twice, thrice on the table, his eyes gleaming with the play-fever. "If I win?" he said, doubtfully—

"You carry away a thousand crowns," answered the Captain, quietly. "If you lose you contrive to leave one of the gates of Lusigny open for me before next full moon. That is all."

"And what if I lose, and not pay the forfeit?" asked the Vicomte, laughing weakly.

"I trust to your honor," said the Captain. And, strange as it may seem, he knew his man. The young noble of the day might betray his cause and his trust, but the debt of honor incurred at play was binding on him.

"Well," said the Vicomte, "I agree. Who is to throw first?"

"As you will," replied the Captain, masking under an appearance of indifference a real excitement which darkened his cheek, and caused the pulse in the old wound on his face to beat furiously.

"Then do you go first," said the Vicomte.

"With your permission," assented the Captain. And, taking the dice up in the caster, he shook them with a practiced hand and dropped them on the board. The throw was seven.

The Vicomte took up the caster. and, as he tossed the dice into it. glanced at the window. The moonlight shining athwart it fell in silvery sheen on a few feet of the floor. With the light something of the silence and coolness of the night entered also and appealed to him. For a few seconds he hesitated. He even made as if he would have replaced the box on the table. But the good instinct failed. It was too late, and, with a muttered word which his dry lips refused to articulate, he threw the dice. Seven!

Neither of the men spoke, but the Captain rattled the little cubes and again flung them on the table, this time with a slight air of bravado. They rolled one over the other and lay still. Seven again!

The young Vicomte's brow was damp and his face pale and drawn. He forced a quavering laugh, and with an unsteady hand took his turn. The dice fell far apart and lay where they fell. Six!

The winner nodded gravely. "The luck is still with me," he said, keeping his eyes on the table that the light of triumph which had suddenly leaped into them might not be seen. "When do you go back to your command, Vicomte!"

The unhappy man stood like one stunned, gazing at the two little cubes which had cost him so dearly. "The day after to-morrow," he muttered hoarsely, striving to collect himself.

"Then, shall we say the following evening?" asked the Captain.

"Very well."

"We quite understand one another," continued the winner, eying his man watchfully and speaking with more urgency. "I may depend on you, M. le Vicomte, I presume?"

"The Lanthenons have never been wanting to their word," the young nobleman answered, stung into sudden haughtiness. "If I live I will put Lusigny into your hands, M. le Capitaine. Afterwards I will do my best to recover it—in another way."

"I shall be entirely at your disposal," replied the Captain, bowing lightly. And in a moment he was alone—alone with his triumph, his ambition, his hopes for the future—alone with the greatness to which his capture of Lusigny was to be the first step, and which he should enjoy not a whit the less because as yet fortune had dealt out to him more blows than caresses, and he was still, at forty, after a score of years of roughest service, the governor of a paltry country town.

Meanwhile, in the darkness of the narrow streets, the Vicomte was making his way to his lodgings in a state of despair and unhappiness most difficult to describe. Chilled, sobered and affrighted, he looked back and saw how he had thrown for all and lost all, how he had saved the dregs of his fortune at the expense of his loyalty, how he had seen a way of escape and lost it forever! No wonder that, as he trudged alone through the mud and darkness of the sleeping town, his breath came quickly and his chest heaved, and he looked from side to side as a hunted animal might, uttering great sighs. Ah, if he could only have retraced the last three hours! Worn out and exhausted, he entered his lodging. and securing the door behind him stumbled up the stone stairs and entered his room. The impulse to confide his misfortunes to some one was so strong upon him that he was glad to see a dark form half sitting, half lying in a chair before the dying embers of a wood fire. In those days the man's natural confidant was his valet, the follower, half friend, half servant, who had been born on his estate. who lay on a pallet at the foot of his bed, who carried his *billet-doux* and held his cloak at the duello, who rode near his stirrup in fight and nursed him in illness, who not seldom advised him in the choice of a wife, and lied in the support of his suit.

To be continued.

BOCK BEER.

HISTORY OF THE CELEBRATED BOCK BROUGHT TO LIGHT.

From Munich, the city of beer and beer drinkers, a German historian has announced a discovery of interest to the beer drinkers and philologists of the world. In a chronicle of the Bavarian Capital, written between three and four centuries ago, he has found the early record of bock beer and beer brewing in Munich. At the begining of the sixteenth century a young princess of the Munich court was sent off to Russia to marry the heir to the Russian throne. She was so averse, however, to the dark and morose Crown Prince that after many days of hysterical indicision she cut loose from him abruptly and left with her suite for home. She became ill on the way and was obliged to stop over in Einbeck, famous for producing the best beer in Europe. As German doctors do now, so her doctors did then, and recommended the best beer as the best tonic. She followed their recommendation, and recovered. When she appeared eventually in Munich again her suite had been increased by the addition of an Einbeck brewer. The princess at once had the court brew house built near the royal residence, and there it still stands, giving to the world the matchless Hofbrau as it first gave it under the management of the princess's imported Einbecker. The house was near the outer walls of the city then and not far from a gate known as the Cos-gate, after the Gos-beer, the finest of Einbeck beers, which derived its prefix from the abbreviation of the names of its distinctive superiority in color, odor and savor. Cos-beer was brewed but once annually, and was drunk in May. But at the beginning of this century cos-beer was manufactured so much more than any other Einbeck beer in Munich that in ordering it a person usually called simply for "Einbeck," which soon became corrupted into "Einbock," and this became "ein Bock" just before the revolution of 1848-9. So a *bock* or goat was made the symbol of the famous brew, which originally had as little real or figurative connection with a goat as Einbeck had.

ICE CALORIMETERS.

TO MEASURE HEAT GIVEN OFF IN COOLING.

Wilcke, a Swede, was the first to employ melting snow to measure the heat given off by bodies in cooling. The principal difficulty in this method is to insure that all the heat given off by the body is employed in melting the ice, and that no other heat reaches the ice so as to melt it, or escapes from the water so as to freeze it. Says the *Optician:* The first instrument which fulfilled the above condition received the name of calorimeter, and consisted of three vessels, one within another. The first, or innermost vessel, known as the receiver, is intended to hold the body from which the heat to be measured escapes. It is made of thin sheet copper so that the heat may readily pass into the second vessel. The second vessel, or calorimeter proper, entirely surrounds the first. The lower part of the space between the two vessels is filled with broken ice at the freezing point, and the first vessel is then covered by means of a lid, which is itself a vessel full of broken ice. When ice melts in this vessel, whether in the lower part or in the cover of the first vessel, the water trickles down and passes through a drainer, which prevents any ice from escaping. and so runs out into a bottle set to catch it. The third vessel, which is called the ice jacket, entirely surrounds the second, and is furnished, like the second, with an upper lid to cover the second. Both the vessel and the lid are full of broken ice at the freezing point, but the water formed by the melting of this ice is carried off to a vessel, distinct from that which contains the water from the calorimeter proper Suppose there is nothing in the receiver, and that the temperature of the surrounding air is above the freezing point, any heat that enters the outer vessel will melt some of the ice in the jacket and will not pass on, and no ice will be melted in the calorimeter. As long as there is ice in the jacket and in the calorimeter, the temperature of both will be the same, that is, the freezing point, and, therefore, by the law of equilibrium of heat, no heat will pass through the second vessel either outward or inward. Hence, if any ice is melted in the caloirmeter, the heat which melts it comes from the receiver. Bunsen's calorimeter is a small instrument. The body that is to give off the heat which is to be measured is heated in a test tube placed in a current of steam of known temperature. It is then dropped, as quickly as may be, into the test tube of the calorimeter, which contains water at 32 deg. Fahr. The body sinks to the bottom and gives off heat to the water. The heated water does not rise in the tube, for the effect of heat on water between 32 deg. and 39 deg. Fahr. is to increase its density. It therefore remains surrounding the body at the bottom of the tube, and its heat can escape only by conduction either upward through the water or through the sides of the tube, which, being thin, afford a better channel. The tube is surrounded by ice at 32 deg. in the calorimeter, so that as soon as any part of the water in the tube is raised to a higher temperature, conduction takes place through the sides and part of the ice is melted. This will go on till everything within the tube is again reduced to 32 deg. Fahr., and the whole quantity of ice melted by heat from within is an accurate measure of the heat which the heated body gives out as it cools to 32 deg. Fahr. To prevent any exchange of heat between the calorimeter and surrounding bodies, it is placed in a vessel filled with snow gathered when new fallen and free from smoke. This substance, unless the temperature of the room is below 32 deg., soon acquires and long maintains the temperature of 32 deg. Fahr. In preparing the calorimeter it is filled with distilled water, from which every trace of air must be expelled by a careful process of boiling. If there is air in the water, the process of freezing expels it and produces bubbles of air, the volume of which introduces an error of measurement. The lower part of the calorimeter contains mercury, and communicates with a bent tube, also containing mercury. The upper part of this tube is bent horizontally, and is carefully calibrated and graduated. As the mercury and the vessel are always at the temperature of 32 deg. Fahr., they are of constant volume, and any changes in the position of the mercury in the graduated tube are due to the melting of ice in the calorimeter, and the consequent diminution of volume of the mass of ice and water in it. To prepare the calorimeter for use, ice must be formed in the calorimeter round the test tube. For this purpose Bunsen causes a current of alcohol, cooled below 32 deg. by a freezing mixture, to flow to the bottom of the test tube and up along its sides. In this way the greater part of the water in the calorimeter is soon frozen. When the apparatus has been left for a sufficient time in the vessel containing snow, the temperature of this ice rises to 32 deg. Fahr., and the apparatus is ready for use.

DOMESTIC DIETETICS.

SPECIALLY PREPARED, FROM PRACTICAL TESTS, FOR THE LADY READERS OF THE "AMERICAN ANALYST."

SEASONABLE FOOD.

January.

MEATS.—Beef, mutton, ham, kidneys, liver, venison sausage, pork.

GAME AND POULTRY.—Grouse, hare, pigeon, quail, chicken, duck, turkey, rabbit, geese.

FISH.—Bream, cod, crabs, eels, carp, flounder, halibut, herring, lobster, mackerel, mussels, oysters, perch, rock-fish, salmon, smelt, whitefish.

VEGETABLES.—Artichokes, beets, beans, cabbage, carrots, cauliflower, celery, garlic, lettuce, onions, parsley, parsnips, potatoes, shallots, spinach, squash, tomatoes, turnips.

FRUIT.—Apples, bananas, grapes, oranges.

PRACTICAL RECIPES.

TERRAPIN SOUP.—Take a large fresh water terrapin and clean it; place it in a kettle with two quarts of water, a slice of bacon, two dozen cloves, three dozen allspice, salt, black and red pepper. Boil for three or four hours, then thicken and brown it, and just before serving add a glass of wine in which is grated half a nutmeg.

VENISON SAUCE.—Take the trimmings from the venison, and to every half pound of meat put half a pint of water; add a tablespoonful of whole cloves, and boil down to about half its quantity. Strain, and to a pint of liquor add one-half a tumblerful of currant jelly, one-half a tumblerful of claret, a tablespoonful of butter and a tablespoonful of flour rubbed together, half a tablespoonful of ground cinnamon or mace, and salt and pepper.

CHICKEN IN BATTER.—Make a batter of three eggs, a little butter, a little flour, and salt to taste; joint the chicken and put it into the batter; let the frying pan get very hot, put some butter in it, and when melted pour in the chicken and batter and fry a good brown.

CRAB-APPLE SHORT-CAKE.—Two cupfuls of thick sour cream, a pinch of salt, a small spoonful of soda, and flour to make a stiff batter; place in a deep pie-tin and bake a light brown. Have ready a quart of sauce, made of crab-apples and sugar stewed thick. Split the cake when done, butter each half and spread with the sauce. Serve with the juice sweetened and slightly thickened with corn starch.

PARADISE.—Peel and remove the pith from some fine juicy oranges; divide them into sections, and with a quill carefully remove the seeds; dip each piece first in the beaten white of an egg, then roll it in powdered sugar until no more will stick to it; heap up the pieces in some pretty shape on a glass dish; pour over them a little brandy or wine, and before it is dry pour on a quantity of desiccated or fresh grated cocoanut.

ORANGE PIE.—Peel and remove the pulp and seeds from two fine oranges; put with them a little of the grated peel, the yolks of three eggs, a cupful of sugar, a cupful of milk and a tablespoonful of melted butter. Put the yolks and sugar together, add the butter, then the orange, and lastly the milk. Bake with under crust only, and when firm take from the oven and cool; then spread on the whites of the eggs, beaten until they are stiff and sweetened. Put the pie in the oven for a moment to brown.

VENICE PUDDING.—Make a rich custard of a cupful of milk and five eggs, with sugar and flavoring to taste; when it is almost cold pour it into a mold. Take one or two sponge cakes and dip them in brandy, and let them float on the top of the custard. When the custard is set cut up a little candied or preserved fruit and drop it into the mold. Let it be very cold when served.

CORRESPONDENCE.

ROCK CANDY.

AUBURN, *Dec.* 29, 1891.

Editor AMERICAN ANALYST: Will you kindly tell me, through the ANALYST issue, what is the quality of the sugar of which I enclose a sample. It is called "Crystallized Sugar." Is it safe to use? Please oblige a subscriber to your journal, and answer to

E. B.

ANSWER.—The sample consists of small pieces of rock candy, which is crystallized sugar and perfectly safe to use. EDITOR A. A.

◆

IT IS ALL SETTLED, BUT WE DO NOT BELIEVE IT.

Editor AMERICAN ANALYST: Treating the subject of "la grippe" in your issue of the 7th inst., you say: "During all this time singularly little seems to have been learned about it. Notwithstanding the great improvements which have taken place in scientific observation and in statistical facilities, the chief mysteries of the disease remain as much mysteries as ever. The microbe, if it be a microbe that does the mischief, is undiscovered, nor has the problem of the method of propagation been fully solved."

There is no mystery about "la grippe" at all. Ig-

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norance abundantly, I grant you, but no mystery. And I am weary of beholding the depressing spectacle of an army of so-called physicians in all lands rushing eagerly into print to assure the world that they "don't know."

Hallier's *Zeitschrift fur Parasiten Kunde* made known to the world the discovery by Dr. J. H. Salisbury, of New York, of the infusoriol parasite, to which he gave the name of *Asthmatos Ciliaris*, the poisonous little devil who causes "la grippe" or "influenza," as the malady used to be known. Credit is given to Dr. Salisbury in W. Sowille Kent's great *Manual of Infusoria* (London, 1882) for his discovery, which this authoritative work confirms, and to which it accords the honor of being the first knowledge attained of the only known representative of the genus *Asthmatos*. The *Asthmatos Ciliaris* is very minute, either an almost spherical or an oval sac, often with a long proboscis, always with a map of cilia on one end. It is easy to see them, as I have repeatedly, under the microscope. The young are developed within the parent cell, and when mature are dislodged at the end of the organism opposite the cilia. While the creature lives, it keeps its cilia in pretty constant motion, aggravating the mucous surfaces in which it has found lodgment. "La grippe," if properly treated, is by no means so serious or dangerous an affliction as a bad cold. All that is necessary is to kill the parasites, and that is not difficult if the right means are employed. If you let them alone, they will, after giving you infinite pain and trouble, die out in about a month or six weeks, having by that time so poisoned the tract they infest that it is no longer habitable for them. Of course you may die before they do, but as you would only let them remain for the purpose of a scientific experiment, it is presumable that possibility would not deter you from trying which survival would be the fittest, yours or theirs.

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BUSINESS NOTES.

AN INTRODUCTION

to the through car service of the Wisconsin Central Lines and Northern Pacific Railroad is unnecessary. Its advantages and conveniences have been fully established. It is the only route to the Pacific coast over which both Pullman Vestibuled first-class and Pullman Tourist Cars are operated from Chicago via St. Paul *without change*. Through train leaves Chicago every day at 10.45 P. M. The traveler via this route passes through the most picturesque, interesting and prosperous belt of country in the Western World. There is scenery with most striking contrasts that range from the rolling prairie and the pine forest level to the wildest passes of the wildest mountains in the world. There is a series of the noblest cities, towns and villages of every variety and size, from the hamlet or the tiny farm, upward; the richest mines in the world; the greenest and most lasting pasturage; the wildest scenery on the continent; canons as weird as a nightmare; hills, snows and peaks startling in the magnificence of their beauty, and a perfection of comfort in traveling that has never been surpassed. Fast train via the Wisconsin Central Lines for St. Paul, Minneapolis, Ashland and Duluth leaves Chicago at 5.00 P. M. daily with Pullman Vestibuled Sleepers and the Cenral's famous dining cars attached.

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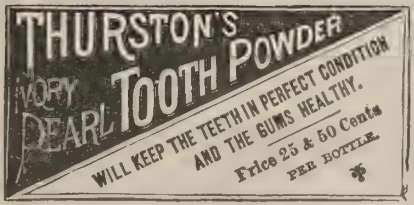

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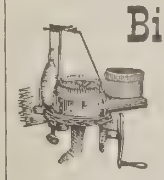

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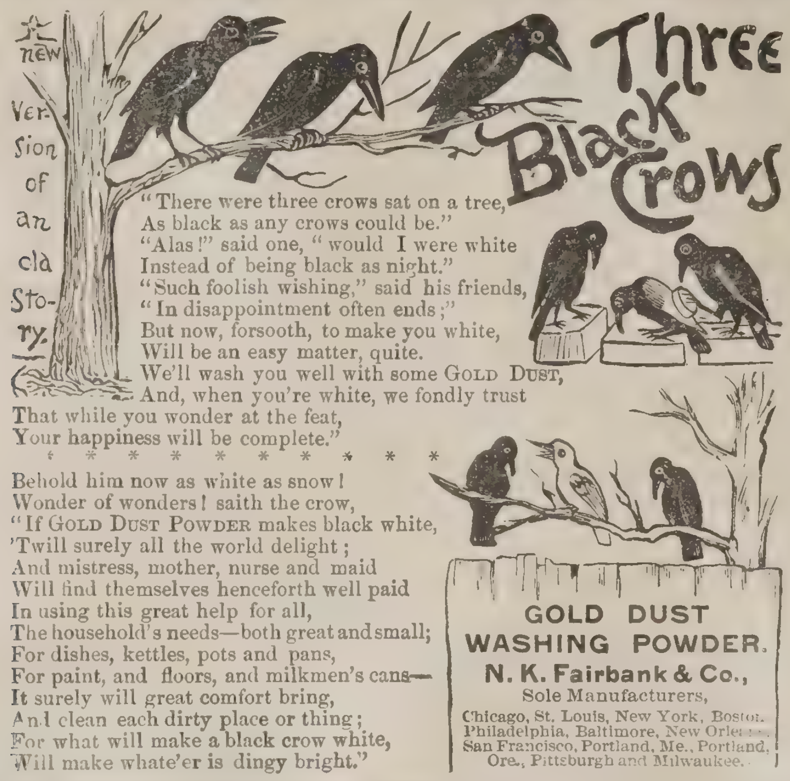

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"There were three crows sat on a tree,
As black as any crows could be."
"Alas!" said one, "would I were white
Instead of being black as night."
"Such foolish wishing," said his friends,
"In disappointment often ends;"
But now, forsooth, to make you white,
Will be an easy matter, quite.
We'll wash you well with some Gold Dust,
And, when you're white, we fondly trust
That while you wonder at the feat,
Your happiness will be complete."

* * * * * * * * * * *

Behold him now as white as snow!
Wonder of wonders! saith the crow,
"If Gold Dust Powder makes black white,
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CONTENTS.

Air Ships 41
Alaskan Exploration 38
Bright Stories
The King's Stratagem (*Concluded.*) 40
Domestic Dietetics 42
Editorials 37
The Pure Food Bill; Our Exports of Cattle and Hog Products; Cobbler Stick to Your Last.
Food and Health Exposition 43
Meteorological Physics 41
Licorice 39
Mine of Fossils 42
Old English 44
Undiscovered Universe 39

THE PURE FOOD BILL.

The General Pure Food Bill which Senator Paddock introduced on the first bill day was reported back to the Senate with a favorable report from the Committee on Agriculture. Senator Paddock hopes to obtain early action in the Senate, so as to allow time for the consideration of the bill in the House. He was late in getting the bill perfected in the last Congress, but the work then done is still available, and the Senator believes that he has the bill in nearly perfect shape. The bill meets the constitutional objection to interfering with business in the States by limiting its application to articles which are the subject of the inter-State commerce, or of commerce in the Territories or the District of Columbia. The essential principal of the bill is the branding of harmless adulterations as such, and the prohibition of the manufacture and sale of injurious compounds.

OUR EXPORTS OF CATTLE AND HOG PRODUCTS.

Dr. D. E. Salmon, chief of the United States Bureau of Animal Industry, in a paper read yesterday before the State Agricultural Society, on the introduction of American meats into European markets, said that the loss to farmers during the last ten years of $585,000,000 by unjust measures of foreign Governments against the importation of American pork and beef, had caused the crisis in the depression of the cattle and hog-raising industry in this country. The inspection now imposed as a condition of exportation to Europe it had been shown, he said, could be easily fulfilled. The depressed industries, he said, had hardly had time to show recovery from the removal of the foreign embargo.

◆

COBBLER, STICK TO YOUR LAST.

How a minister made himself ridiculous and misled people, can be seen from the following extracts from the New York daily papers: "The Rev. Madison C. Peters, of the Bloomingdale Church, at the Boulevard and Sixty-eighth Street, gave an interesting lecture on 'Samples from Sample Rooms.' He began by saying that in December he visited a dozen of the best kept liquor stores in the neighborhood and bought pint samples of their best gin, whiskey, brandy, port wine, sherry, etc. These he had taken to expert chemists for careful analysis. In the sample of 'pure Holland gin,'" said he, "we found neutral spirits, rotton corn, juniper berrries, turpentine and vitriol. We dropped the white of an egg and an oyster, both easily digestible articles, into this compound and saw them shrivel up into hard, stringy masses. This shows how nicely a drop of gin aids digestion. In the sample of 'fine old hand-made Kentucky whiskey,' we found neutral spirits, glycerine, sulphate of zinc, chromic acid, creosote, unslacked lime and fusel oil. Now, fifteen drachms of fusel oil evaporated in a box will make the toughest cat you can put in that box insensible in less than an hour. But the port wine, that rich, fruity drink, which solid respectability is proud to take after dinner—that was the worst of all. What do you think we found in the best sample that I could buy? Well, there was neutral acid, glycerine, licorice, zinc, mercury, antimony, salts of tartar and ether, muriatic acid and alum. I have statistics to show that one hundred times more imported port wine is sold than can be made from all the grapes in Oporto. It is the same with all other wines. Madeira produces 30,000 barrels of wine per year, and America alone drinks 50,000 barrels of Madeira wine in that time. In the best of lager beer there were discovered pepper, ginger, vinegar, capsicum, cream of tartar, acetic, nitric, citric, tartaric, sulphuric and prussic acids; nitric, sulphuric and acetic ether; spirits of nitre, the oils of vitriol, turpentine and cassia; caraway seed, cloves, japonic extract, bitter almonds, orris root, grains of paradise, Spanish juice, black ants, dried cherries, orange peel, coriander seed, white oak bark, tannic acid, fennel seed, cardamon seed, wormwood, copperas, alum, sulphates of iron and copper, licorice, opium, gentian root, quassia, cocculus indicus, tobacco, saltpetre, logwood, marble dust, eggshells, hartshorn, nutgalls, potash and soda. One ounce of whiskey is a good, big drink. There are 128 of these in a gallon, which, at ten cents a drink, brings in $12.80, for what costs the saloon keeper just $1.70." Now, we have no fault to find with any one who strives to better the world by advocating temperance, but to do this by deliberate misrepresentation, as seems to have been the case in this instance, does far more injury than any possible good that can arise from such an onslaught. A simple perusal of what this sensational preacher said, shows at a glance that he does not know what he is talking about. Let us take a few examples at random from his statements and throw the light of common sense upon them. He said he found by analysis rotton corn in Holland gin. As rotton corn is decomposed, and therefore contains no sugar, alcohol cannot be distilled from it; gin being alcoholic, by what reagent did this parson-chemist manage to find his alleged rotton corn? It is like the man who claimed to have in his museum the sword of Balaam, and when told that Balaam had no sword, but only wished for one, he added that this was the one he wished for. In Kentucky whiskey he found sulphate of zinc, chromic acid, creosote, unslacked lime and fusel oil. Sulphate of zinc and chromic acid would not add any desirable quality to whiskey, therefore no distiller would be fool enough to spend money for such an addition. Creosote might be found in imitation Irish or Scotch whiskey, to give it the flavor of the genuine article derived from the smoky peat on which the malt is dried, but that flavor would hurt the sale of any Kentucky whiskey. Unslacked lime would quickly become slacked in whiskey, hence could not be found in any liquid. Fusel oil is of two kinds, the heavy and light. The former is the most poisonous, the latter is what gives whiskey the bouquet, and without that it would be simply a neutral spirit, flavorless and odorless, and would be unsalable. In port wine the reverend Mendax claims to have found, among other things, mercury and antimony. Both being insoluble, and therefore if ever present in the port wine they would be useless, because they could only be found at the bottom of the vessel. In lager beer this great authority found among other things vinegar, which would have made the beer sour, and, as if that was not enough to insure its acidity, he found some seven or eight other acids, several ethers, and some of these acids he found under several names. His tests must have been exceedingly delicate to have distinguished between sulphuric acid and oil of vitriol, cream of tartar and tartaric acid and soda. He claims to have found white, blue and green vitriol, and, besides, the sulphates of zinc, copper and iron. Any ten-year-old boy fresh from school would laugh at his ignorance. Then he leaves chemistry and enters the domain of

READ PAGE 45.

arithmetic and whiskey-shop economy. Here a still more ridiculous attitude is assumed by him. He seriously states that an ounce of whiskey—that is, two tablespoonsful, is a good, big drink. In other words, he would have us believe that one-sixteenth of a pint is a big drink. We did not suppose that any man, who had received the education required to occupy a pulpit, could be so ignorant; it was impossible to believe that a preacher of the Gospel, who claimed to be a follower of his Master, would so far forget himself as to allow his blind intolerance to lead him into an open violation of the ninth commandment, and were disposed to credit the more absurd portions of the tirade to a misunderstanding of the preacher's remarks by the reporter, but when, on a second interview, the preacher reiterated his former statements, and boldly admitted that he had wilfully lied about his pretended analyses that he had not had any made, but had quoted from a buyers' guide the various drugs and chemicals offered for brewers' use, and jumped at the conclusion that, because these things were so offered, they must necessarily be used for adulteration purposes, we had to believe. He might as well have said that brewers bought coal to adulterate the beer. Many of the articles advertised for brewers' use are required for cleaning purposes, others for repairs to machinery, and a moment's reflection would have shown this to this sensation monger, but he did not want to get at or tell the truth; he needed highly colored misrepresentation to smudge his neighbor's character and bring himself into notoriety. The ordinary preaching of the word by such men as he would not attract attention, and certainly would never appear in print. As he needs notoriety, that being the only capital in trade of such fellows as he is, he had to tell gross falsehoods to attract the attention of the reporters. He has succeeded well. He is now known as a most ignorant and unscrupulous defamer of other people's reputation, and evidently relies upon his garb and profession to protect him from justly deserved punishment. This, however, will not save him from the scorn and derision of honorable people, who, while they favor temperance, believe that temperance applies to all things, as well to the lying tongue of a preacher of the Gospel as to the bibulous appetite of the drunkard. A second interview with him, which we shall now quote, confirms all that we have said, and convicts the defamer out of his own mouth. Truly, the cobbler should stick to his last: "My remarks about lager beer were not quoted correctly. What I said was that ale and beer were not harmful drinks when pure; but by reference to the 'Brewers' Guide,' a book very hard to obtain, it will reveal that these various drugs are recommended for use to the brewers. I obtained this information from a 'Brewers' Guide' lent to me by a young Philadelphian, and have since returned the book to him. Beer, however, was but a passing side issue in my sermon. As a matter of fact, you can't make an analysis to get at the adulteration in beer. The brewers of this country import annually 1,000 bags of cocculus indicus and use it in making their beer. Now, as to the adulterations in the gin, whiskey and port wine. Will you tell me where you purchased the adulterated samples? No, it would not be fair. I do not want to attack anybody. My object was to purchase samples from various places in different parts of the city, and to prepare an elaborate discourse on the subject. I was taken sick last week, and sent a young friend out to buy the samples for me. He misunderstood my instructions, and bought them all in one saloon in this neighborhood. With the assistance of Dr. Porter, of No. 181 West Seventy-third Street, I analyzed the gin, whiskey and port wine, with the result published. The beer I did not think worth while testing. Before coming to this city I frequently purchased and analyzed beer and liquors in Philadelphia, and found them adulterated. I tried the egg and oyster test on whiskey, and they shriveled up into stringy masses. The reporter who took Mr. Peters' sermon is positive that the reverend gentleman was quoted correctly. The reporter asked Mr. Peters several times if he was sure of his facts, as the printing of such broad statements was bound to cause something of a sensation, to which Mr. Peters replied that he was sure; that he was prepared to stand by anything he said, and that he liked to figure in just such sensations."

ALASKAN EXPLORATION.

SOME INTERESTING FACTS CONCERNING THAT REGION.

E. J. Glave, one of Henry M. Stanley's assistants in establishing the Congo Free State, who started from this city about nine months ago on an exploring expedition to Alaska, returned on January 2d. He had, he said, demonstrated the fact that the whole country east of Schwatka's Field is available for pack horses and is suitable for traffic. Starting at the mouth of the Chilkat River, Mr. Glave went with the first horses which had ever been taken to that portion of Alaska, about 110 miles to the northeast of the Mount St. Elias Range of mountains. He found a country far different from what has generally been supposed to exist there. It is fertile, abounding in grasses and other vegetation, flat in large sections, like the Western prairies, and watered by rivers, some of which are a half mile wide. Berries grow there. There are groves of fir and spruce and tamarack, and in the streams are salmon in great abundance. At times in the Summer the thermometer rises to the nineties, and the region is, according to Mr. Glave, more like a park than the wild, barren country which all Alaska is sometimes supposed to be. Mr. Glave had been in Alaska on an exploring expedition the previous year. At that time little progress was made, and it was impossible to go far inland, because there was no means of transportation except the Indians who carried the outfit on their backs. With this method of transportation Mr. Glave said that the cost had been, from Chikat to the head waters of the Yukon, at the rate of $40 per 100 pounds. That made travel an impossibility almost. He resolved to take a team of pack horses inland, if possible, and make explorations for minerals. One white man had accompanied him. While he had not found valuable minerals, in the quantity he anticipated, he believed he had found gold, silver, copper and cinnabar in quantities that would pay to work. His success in using the pack horses had been all that he had anticipated. Mr. Glave was with Stanley in Africa for some years, and any hardships which he had experienced in Alaska, he said, were insignificant. The trip had really been a pleasant one. "We took four horses from Seattle," said Mr. Glave, "and I believe they were the first ones ever seen in the portion of the country we visited. They were heavy fellows, possibly of a part Norman blood, and compactly built. They were easily capable of carrying a pack of 300 or 400 pounds constantly. The Indians called them 'big dogs' Starting at the mouth of the Chilkat, we went a zigzag course of perhaps 400 miles. We went over small mountain ranges, swam wide rivers, and penetrated an air-line distance of something over 100 miles from the coast. We spent time enough to examine the resources of the country, and returned only because the natives warned us that Winter was coming and there might be snow and ice, which would prevent our horses from getting back. I am convinced that the use of pack horses, and, eventually, a railroad, through the country we visited, is feasible and will be profitable. Instead of the icebergs and snow fields which have been pictured in that portion of Alaska, there is abundance of grass for horses, and the weather in the Summer, at any rate, is mild. It is so near the land of the midnight sun that during July the nights are very short, and on some occasions it was so light that one could see to read all night. In the Winter, it is, doubtless, very cold, and we heard reports that the thermometer drops to 55 deg. below zero sometimes. There is no question of the existence of the precious metals in this part of Alaska, and there is timber enough for use in mining it if it should ever be shown that the metals are there in paying quantities. There is no lack of timber for building purposes. The natives are not numerous. They are the 'Stick' Indians, so called because they live in the forests and are fond of living in the woods rather than on the prairies. They resemble more the North American Indian than they do the Esquimau, having prominent noses and high cheek bones. They are a mean, crafty, dirty race. They are full of deceit, but lack the courage which would make them dangerous. They are harmless. They are not so lazy as 'Government Indians,' for they must work to live. They trade in furs. Minks, caribous, bears, mooses, and wolves abound in that part of Alaska, and the Indians make their living chiefly by trapping them and trading with fur companies on the coast. An Indian's wealth is measured by the number of blankets he has. Furs are traded for blankets, and the wealthy men are those who can point to the largest pile of them. Some of the chiefs have large bales of blankets hoarded up. They are not used now, and perhaps never will be but they are the bank account of the Alaska Indian. These Indians wear clothing made of hides. They live on meat and fish rather than vegetables, and have an inordinate thirst for Florida water, which contains alcohol enough to intoxicate them. They have no whisky, for it is not taken there by the white men, although along the coast a few distilleries are in operation which make an alcoholic drink from potato peelings or molasses. Some of those Indians will trade a valuable bale of furs for a quart of Florida water. No law prohibits the sale of this, and it is the Indian's chief intoxicant. The Indians have no religion, except that they believe the raven to be a sacred bird. They have medicine men, whom they believe to be possessed of supernatural powers, and when some one of the tribe is sick they assist the medicine man in driving out the disease by having a dance. They burn their dead. They have many superstitions. When the physician has driven disease from one of their number, they sometimes are told by the healer that the disease has gone to one of the dogs or to a wolf or some other animal. Then this animal must be killed, and when that is done there is no further possible danger from this particular disease. The man is the lord of creation, as was the American Indian. When journeys are undertaken the women and children are loaded with the family baggage and the men walk ahead of the procession with their guns. These they have acquired from the traders, and they are well equipped with ammunition. The number of these Stick Indians is not large, and the country is sparsley settled. In the streams there are many salmon. They may be easily caught, and the natives have a way that is simple and effective. The water in the streams is often so brackish that the fish cannot be seen. The natives fasten a large gaff hook to a long slender pole, and, holding it under water, pass it slowly down the stream. The current is swift and the fish move up at a comparatively slow rate of speed. The native pushes his pole down the stream until he feels it touch the body of a fish, and then, with a quick turn and a jerk on his pole, he hooks the fish in the side or the belly, and lands him without a struggle. In some streams they are so numerous that they may be caught in this way at the rate of from five to eight in fifteen minutes. Blue grasses and other varieties which the horses ate readily, grow luxuriantly in the level places. There are berries of several varities, among others a kind of raspberry, which is to be found in considerable quantities. No large fruits were to be found. Wild onions grow in great quantities, and potatoes are grown to some extent. The natives, however, make no effort to raise vegetables. Mr. Glave said he believed his experiment in taking horses to this country, which had never been penetrated except by a few men who had been looking for metals, and demonstrated that this great region might be developed. He had come away before Winter owing to the small outfit he had with him, and as he did not wish to take any chances of losing his horses. He believed, he said, that with the knowledge he now had of the country it would be possible to lay in supplies of hay and other provender to keep teams there through the Winter. He took several hundred photographs and made a map of the country traversed. One thing that had prevented full examination of the southeastern portion of Alaska by miners, Mr. Glave said was the fact that the boundary between Alaska and the British possessions had not been surveyed. For a thousand miles there was nothing to show whether the property belonged to the United States or to Great Britain, and as the mining law in the two countries were different there was hesitation on the part of every one to put any money into an enterprise to ascertain if there were minerals there in paying quantities.

LICORICE.

THE GROWTH OF LICORICE ADULTERATION.

This being the time of the year when the new season licorice product is placed on the market, it will be well to put our readers on their guard as to the qualities and comparative purity of the varieties now being marketed by importers and manufacturers. Pure licorice is extracted from the root *Glycyrrhiza glabra.* The root is round, succulent, tough and pliable. It is furnished with sparse fibres, rapid in its growth, and, in sandy soils, penetrates deep in the ground. The juice is an excellent demulcent, well adapted for the treatment of catarrhal affections and irritations of the throat. The method of producing pure licorice is, shortly, as follows: The roots having been dug up, thoroughly cleansed, and half dried by exposure to the air, are cut into small pieces and boiled in water till the liquid is thick and turgid. The decoction is then allowed to rest, and after the dregs have subsided, is decanted and evaporated to the proper consistency. The extract thus prepared is formed into rolls, from five to six inches long, and about one inch in diameter. These are of the best qualities, and are called Solazzi and Corigliano. The bars are dried and wrapped in laurel leaves. They are of Italian origin, from which country the very finest licorice is produced. The qualities of licorice in various countries differ very materially. The juice from Turkey and Greece has a bitter flavor, that of Spain is sweet and pleasant, but the product of Italy is far richer and more aromatic than any other varieties. There is no doubt that licorice is adulterated to an enormous extent previous to importation, more particularly by the French and German manufacturers. The English makers of licorice goods of the commoner and cheaper kinds are not ashamed to increase the bulk of the imported juice two or three times its original weight, by incorporating with it large quantities of glucose, common sugars, starch and other farina; whilst many of the less scrupulous traders sophisticate licorice goods with much viler and more harmful adulterants. The best juice commands a minimum price of about 80s. per hundredweight, cheap adulterated goods, not dissimilar in general appearance, can be obtained from 35s. to 40s., and this second-rate stuff is still further tampered with before it comes into the hands of the consumers. Mr. Bernard Dyer, F.I.C., F.C.S., recently remarked that "there seems to be no doubt that a large proportion of the licorice in the market—notably that from French sources—is grossly adulterated, and, so far as regards such specimens as I have analysed, there should be no difficulty in dealing with the matter under the Sale of Food and Drugs Act. The qualities of the brands most to be depended upon, after Solazzi and Corigliano, are the Italian ones of Pignatelli, Grasso and Zuvia." No doubt the trade has suffered very greatly by the wholesale introduction of harmful adulterants into licorice goods, the real value of the true juice, which is both beneficial and nutritious, being destroyed by the admixture of foreign matter. We cannot, of course, blame the retail confectioners for such vices; they suit the pockets of their customers by buying of the manufacturer such goods as they can sell; but we are firmly of opinion that the once flourishing condition of the licorice trade would be revived if liquorice workers used juice of only the best brands, and dealt solely with firms of well-established reputation who stock the justly celebrated Solazzi juice.—*London Confectioner.*

THE UNDISCOVERED UNIVERSE.

SOME SPECULATIONS ON HUMAN KNOWLEDGE.

The universe manifests itself to us in two ways only: by matter and by energy. And, although it is hard to conceive of the existence of energy without matter for it to act upon, it must be admitted that there is a distinct difference between the two classes of manifestations. A wheel in motion is the same wheel as when it is standing still, and yet there is a difference between the two cases. The moving wheel possesses something which we call energy, or that form of energy known as force. The generally accepted theories of the present time refer all the means by which we receive knowledge of the outside universe—namely, sound, heat, light, electricity, etc.—to vibrations, or wave-like motions, either in the air itself or in a hypothetical substance called the *ether*, and permeating the whole universe. That sound is due to vibrations of the air is certain. Whether the ether has an actual existence or not is doubtful; but it is certain that what are commonly called the wave-lengths of light, heat and electricity, are actual dimensions of *something* connected with the manifestations of those phenomena. These vibrations—as we may call them for want of a better name—falling upon the nerves in our bodies convey the corresponding sensations to our brain, as messages from all parts of a city are conveyed over the wires to a central station. Beyond this we cannot go. How the brain perceives sensations, or how they become evident to our consciousness, is something which we do not, and probably cannot, understand, but must take for granted as a part of the great mystery of our individual existence. But the fact that our knowledge of the outside world is due to wave-like or vibratory forms of energy of varying dimensions, leads to some very interesting speculations. Space is full of such vibrations; from the sun and from every fixed star streams of radiant energy are constantly flowing, of every possible magnitude and variety. Up to the present time we have been acquainted with vibrations of a very narrow range of magnitude—approximately between three and eight ten-millionths of a millimeter, a millimeter being about one twenty-fifth of an inch. But it is probable that there are other vibrations, both larger and smaller, constantly surrounding us, which, if our organisms were adapted to receive them, might reveal to us forms of knowledge of which at present we have no conception. The researches of Lodge and Hertz have shown the existence of electrical wave-lengths varying from a few feet to even thousands of miles. Surely, if there were in the human body any nerves which would receive and transmit such vibrations as the infinitely shorter vibrations of light and heat are now received, our conception of the universe would undergo a most radical change. These considerations are not pure speculation and fancy. We have under our control the coarser atmospheric vibrations which produce sound, and by varying their frequency we can produce the highest or lowest notes at pleasure. There are certain limits in each direction beyond which our auditory nerves refuse to respond; but these limits are not the same in different individuals. Some persons will perceive a low musical tone, which to others with less perfect ears is either inaudible or is perceived as a confused noise. The shrill hum of certain insects is inaudible to many, and if there were no other persons in existence possessed of auditory nerves keyed up to a higher pitch, it would be assumed that these insects were incapable of producing sound. The sensitive photographic plate will receive and register forms of energy which in no other way could be rendered perceptible to our senses. It magnifies, as it were, the shorter wave-lengths, and thus manifests them to our less perfect senses. That the so-called lower animals have the power of perceiving sensations unknown to man, seems almost certain. The almost inaudibly shrill cry of the insects above referred to is evidently produced for some purpose. It is useful to those animals in their struggle for existence, and the impression it makes upon the nerves of their companions is doubtless very different from the way in which it is perceived by our coarser ears. The means by which bees, ants, wasps and similar animals communicate with each other; the marvellous faculty of the dog in tracing his master, or of cats and pigeons finding their way home from long distances and over unknown roads, has never been explained, and can only be explained by supposing that they have sources of knowledge of which we can form no conception. If a wave of radiant energy miles in length is known to exist, why is it not possible that such waves may act in some way upon the perceptive faculties of a cat or a pigeon at that distance, just as the luminous vibrations from a distant lighthouse inform the sailor how to find his way to port? The subject is a fascinating—although a rather unsatisfactory—one to pursue. The distinction between reason and instinct is an interesting one to consider in this connection. The tendency to certain actions, both in man and animals, is instinctive—that is, it does not depend upon instruction from others or from direct observation. It is as certain that animals reason as it is that man has instincts. A microscopic animal has been observed to turn out for an obstruction as it slowly moved along the glass slide, and even the amœba—the lowest form of life—seems to exert a certain power of selection in gathering his food. But, disregarding these perhaps doubtful evidences of reasoning power, the intelligence displayed by the dog, horse, monkey or elephant, in many cases cannot be distinguished from that which governs the actions of the wisest men. On the other hand, the functions of nutrition, reproduction and self-preservation are as truly instinctive in man as in any other animal; and if an infant could be abandoned on an uninhabited island, and by any means survive, all these functions would be developed as perfectly as in an inhabitant of the most crowded city. This brings us once more face to face with the problem of life itself. What force is it that leads men and animals to perpetuate their individuality by seeking food, and fleeing from or giving battle to enemies, or leads them to perpetuate their species by reproducing their kind? What is the universal fear of death but an instinctive tendency towards the perpetuation of both individual and species? We can find no cause for such actions and desires unless they are an imperfectly perceived connection with the undiscovered universe about us. May not some of the vibrations sent to us from the sun and other centres of radiant energy have a more profound influence upon us than we have knowledge of? The waves of light and heat are directly perceived by us—but what of the others? There is certainly an undiscovered universe. Whether it is identical with "that undiscovered country from whose bourn no traveller returns," time only can tell. Our mental and spiritual horizon is a very limited one. To a microbe a drop of jelly is a universe, and our own universe may prove in the future to be only an infinitesimal portion of an infinite whole. The little progress that we have made in comprehending the mechanism of the universe which our senses make known to us, only shows the vastness of that which lies beyond; and we must depend alone upon the great and universal law of progress and development to bring us to a complete understanding of the conditions of our own existence, and a perfect comprehension of the great truth that "the Laws of Nature are the Thoughts of God."—*Popular Science News.*

BRIGHT STORIES.

THE KING'S STRATAGEM.

Concluded.

The young Vicomte flung his coat over a chair "Get up, you rascal!" he cried impatiently. "You pig, you dog!" he continued, with increasing anger. "Sleeping there as though your master were not ruined by that scoundrel of a Breton! Bah!" he added, gazing bitterly at his follower, "you are of the *canaille*, and have neither honor to lose nor a town to betray!"

The sleeping man moved in his chair and half turned. The Vicomte, his patience exhausted, snatched the bonnet from his head and threw it on the ground. "Will you listen?" he said; "or go, if you choose, look for another master. I am ruined! Do you hear? Ruined, Gil! I have lost all—money, land, Lusigny itself, at the dice!"

The man, aroused at last, stopped with a lazy movement, and picking up his hat dusted it with his hand, and rose with a yawn to his feet.

"I am afraid, Vicomte," he said, his tones, quiet as they were, sounding like thunder in the Vicomte's astonished and bewildered ears. "I am afraid that if you have lost Lusigny you have lost something which was not yours to lose!"

As he spoke he struck the embers with his foot, and the fire, blazing up, shone on his face. The Vicomte saw, with unutterable confusion and dismay, that the man before him was not Gil at all, but the last person in the world to whom he should have betrayed himself. The astute, smiling eyes, the aquiline nose, the high forehead and projecting chin, which the short beard and mustache scarcely concealed, were only too well-known to him. He stepped back with a cry of horror. "Sire!" he said, and then his tongue failed him. He stood silent, pale, convicted, his chin on his breast. The man to whom he had confessed his treachery was the man to whom he had conspired to betray.

"I had suspected something of this," Henry of Nevarre continued after a pause, a tinge of irony in his tone. "Rosny told me that that old fox, the Captain of Créance, was affecting your company a good deal, M. de Vicomte, and I find that, as usual, his suspicions were well founded. What with a gentleman who shall be nameless, who has bartered a ford and a castle for the favor of Mlle. de Luynes, and yourself, I am blessed with some faithful followers! "For shame!" he continued, seating himself with dignity: "have you nothing to say for yourself?"

The young noble stood with his head bowed, his face white, This was ruin, indeed, absolutely irremediable. "Sire," he said, at last, "You're Majesty has a right to my life, not to my honor."

"Your honor!" quoth Henry, biting contempt in his tone.

The young man stared, and for a second his cheek flamed under the well-deserved reproach; but he recovered himself, "My debt to Your Majesty," he said, "I am willing to pay."

"Since pay you must," Henry muttered softly.

"But I claim to pay also my debt to the Captain of Créance."

"Oh," the King answered. "So you would have me take your worthless life and give up Lusigny?"

"I am in your hands, sire."

"Pish, sir!" Henry replied in angry astonishment. "You talk like a child. Such an offer, M. de Lanthenon, is folly, and you know it. Now listen to me. It was lucky for you that I came in to-night, intending to question you. Your madness is known to me only, and I am willing to overlook it. Do you hear? Cheer up, therefore, and be a man. You are young; I forgive you. This shall be between you and me only," the young Prince continued, his eyes softening as the other's head drooped, "and you need think no more of it until the day when I shall say to you, Now M. de Lanthenon, for France and Henry, strike?"

He rose as the last word passed his lips and held out his hand. The Vicomte fell on one knee and kissed it reverently, then sprang to his feet again. "Sire," he said, standing erect, his eyes shining, "you have punished me heavily, more heavily than was needful. There is only one way in which I can show my gratitude and that is by ridding you of a servant who can never again look your enemies in the face."

"What new folly is this?" said Henry sternly. "Do you not understand that I have forgiven you?"

"Therefore, I cannot give up Lusigny, and I must acquit myself of my debt to the Captain of Créance in the only way which remains," replied the young man firmly. "Death is not so hard that I would not meet it twice over rather than again betray my trust."

"This is midsummer madness!" said the king hotly.

"Possibly," replied the Vicomte, without emotion; "yet of a kind to which Your Majesty is not altogether a stranger."

The words appealed strongly to that love of the chivalrous which formed part of the King's nature, and was one cause alike of his weakness and his strength, which in its more extravagant flights gave opportunity after opportunity to his enemies, in its nobler and saner expressions won victories which all his astuteness and diplomacy could not have compassed. He stood looking with half-hidden admiration at the man whom two minutes before he had despised.

"I think you are in jest," he said presently.

"No, sire," the young man answered gravely.

"In my country they have a proverb about us. 'The Lanthenons,' say they, 'have ever been bad players, but good payers.' I will not be the first to be worse than my name!"

He spoke with so quite a determination that the King was staggered, and for a minute or two paced the room in silence, inwardly reviling the generous obstinacy of his weak-kneed supporter, yet unable to withhold his admiration from it. At length he stopped with a low, abrupt exclamation.

"Wait!" he cried, "I have it! *Ventre Saint Gris*, man, I have it!" His eyes sparkled, and with a gentle laugh, he hit the table a sounding blow. "Ha! ha! I have it!" he repeated joyously.

The young noble gazed at him in surprise, half sullen, half incredulous. But when Henry, in low, rapid tones, had expounded his plan, the Vicomte's face underwent a change. Hope and life sprang into it. The blood flew to his cheeks. His whole aspect softened. In a moment he was on his knee, mumbling the King's hand, his eyes full of joy and gratitude. After that the two talked long, the murmur of their voices broken more than once by the ripple of low laughter. When they at length separated and Henry, his face hidden by the folds of his cloak, had stolen away to his lodgings, where, no doubt, more than one watcher was awaiting him with a mind full of anxious fears, the Vicomte threw open his window and looked out on the night. The moon had set, but the stars still shone peacefully in the dark canopy above. He remembered on a sudden, his throat choking with silent repressed emotion, that he was looking toward his home—the stiff gray pile among the beech woods of Navarre, which had been in his family since the days of St. Louis, and which he had so lightly risked. And he registered a vow in his heart that of all Henry's servants he would henceforth be most faithful.

Meanwhile the Captain of Creance was enjoying the sweets of coming triumph. He did not look out into the night, it is true, but pacing up and down the room he planned and calculated, considering how he might make the most of his success. He was still comparatively young. He had years of strength before him. He would rise. He would not easily be satisfied. The times were troubled, opportunities many, fools many; bold men with brains and hands few.

At the same time he knew that he could be sure of nothing until Lusigny was actually his, and he spent the next few days in cousiderable suspense. But no hitch occurred. The Vicomte made the necessary communications to him, and men in his own pay informed him of dispositions ordered by the Governor of Lusigny which left him in no doubt that the loser intended to pay his debt.

It was, therefore, with a heart already gay with anticipation that the Captain rode out of Créance two hours before midnight on an evening eight days later. The night was dark, but he knew the road well. He had with him a powerful force, composed in part of thirty of his own garrison—bold, hardy fellows—and in part of six score horsemen lent him by the Governor of Montauban. As the Vicomte had undertaken to withdraw, under some pretense or other, one-half of his command and to have one of the gates opened by a trusty hand, the Captain trotted along in excellent spirits, and stopped to scan with approval the dark line of his troopers as they plodded past him, the jingle of their swords and corselets ringing sweet music in his ears. He looked for an easy victory, but it was not any slight misadventure that would rob him of his prey. As his company wound on by the riverside, their accoutrements reflected in the stream or passed into the black shadow of the olive grove which stands a mile to the east of Lusigny, he felt little doubt of the success of his enterprise.

Treachery apart, that is; and of treachery there was no sign. The troopers had scarcely halted under the last clump of trees before a figure detached itself from one of the larger trunks and advanced to their leader's rein. The Captain saw with surprise that it was the Vicomte himself. For a second he thought something had gone wrong, but the young noble's first words reassured him. "It is all right," M. de Lanthenon whispered, as the Captain bent down to him. "I have kept my word, and I think there will be no resistance. The planks for crossing the moat lie opposite the gate. Knock thrice at the latter, and it will be opened. There are not fifty armed men in the place."

"Good!" the Captain answered in the same cautious tone. "But you"——

"I am believed to be elsewhere, and must be gone. I have far to ride to-night. Farewell."

"Till we meet again," the Captain answered: and with that his ally glided away and was lost in the darkness. A cautious word set the troop again in motion, and a very few minutes saw them standing on the edge of the moat, the outline of the gateway tower looming above them, a shade darker than the wrack of clouds which overhead raced silently across the sky. A moment of suspense, while one and another shivered—for there is that in a night attack which touches the nerves of the stoutest—and the planks were found and as quietly as possible laid across the moat. This was so successfully done that it evoked no challenge, and the captain crossing quickly with some picked men stood almost in the twinkling of an eye under the shadow of the gateway. Still no sound was heard save the hurried breathing of those at his elbow or the stealthy tread of others crossing. Cautiously he knocked three times and waited. The third rap had scarcely sounded, however, before the gate rolled silently open and he sprang in, followed by his men.

So far so good. A glance at the empty street and the porter's pale face told him at once that the Vicomte had kept his word. But he was too old a soldier to take anything for granted, and forming up his men as quickly as they entered he allowed no one to advance until all were inside, and then, his trumpet sounding a wild note of defiance, his force sprang forward in two compact bodies, and in a moment the town awoke to find itself in the hands of the enemy.

As the Vicomte promised, there was no resistance. In the small keep a score of men did indeed run to arms, but only to lay them down without striking a blow when they became aware of the force opposed to them. Their leader, sullenly acquiescing gave up his sword and the keys of the town to the victorious captain, who, as he sat his horse in the middle of the market place, giving his orders and sending off riders with the news, already saw himself in fancy Governor of a province and Knight of the Holy Ghost.

As the red light of the torches fell on steel caps and polished hauberks, on the serried ranks of pikemen, and the circle of white-faced townsmen, the picturesque old square looked doubly picturesque. Every five minutes, with a clatter of iron on the rough pavement and a shower of sparks, a horseman sprang away to tell the news at Montauban or Cahors; and every time that this occurred the Captain, astride on his charger, felt a new sense of power and triumph.

Suddenly the low murmur of voices was broken by a new sound, the hurried clang of hoofs, not departing but arriving. There was something in the noise which made the Captain prick his ears and secured for the messenger a speedy passage through the crowd. Even at the last the man did not spare his horse, but spurring to the Captain's side, then, and then only, sprang to the ground. His face was pale, his eyes were blood shot. His right arm was bound up in bloodstained cloths. With an oath of amazement the Captain recognized the officer whom he had left in charge of Creance and thundered out, "What is it?"

"They have got Creance!" the man gasped, reeling as he spoke, "They have got Creance!"

"Who?" the Captain shrieked, his face purple with rage.

"The little man of Bearn! He assaulted it five hundred strong an hour after you left, and had the gate down before we could fire a dozen shots. We did what we could, but we were but one to seven. I swear, Captain, we did all we could. Look at this!"

Almost black in the face, the Captain swore another frightful oath. It was not only that he saw governorships and honors vanish like Will-o'-the-wisps, but that he saw even more quickly that he had made himself the laughing-stock of a kingdom! And he had. To this day, among the stories which the southern French love to tell of the prowess and astuteness of the great Henry, there is none more frequently told or more frequently laughed over than that of the famous exchange of Creance for Lusigny.—*Stanley G. Weyman in the Strand Magazine.*

METEOROLOGICAL PHYSICS.

THE INFLUENCE OF WEATHER ON MIND.

That some animals and plants are able to foretell rain by their sensations is undoubtedly the fact The sundew is well known to close itself before a shower, and sheep are observed to get under shelter before rain. The electric eel becomes more excited in thundery weather, and this remark applies to most fish; carp, especially, have been observed to throw themselves out of the water and become stranded during a storm. Obviously, of animals know by their sensations when wet weather is approaching, it may be of use to them in keeping their fur dry, and plants, by closing their petals, can thus protect some delicate part of their structure from damage. To man as a cave-dweller, or during the long ages of primitive agriculture, the fact of being able to forecast rain by any mental sensations might have been of considerable use. But to civilized man, dwelling in houses and prepared for rain when he goes out, this use of them must long have ceased, and if now felt they are probably not connected with the cause producing them. But this view of its possible usefulness in past times does not explain its causation. Atmosphere, with its continual variations, would be present before any life on this planet, and if it exerted this influence on living beings, as above suggested, the question as to whether they turned it to a useful purpose or not would be of secondary consideration. To look briefly at the phenomena which takes place when rain-clouds are forming, the following seems roughly to be an outline of what is known: When condensation of vapor takes place aloft, the tension on the outside of the cloud is greater than that in the interior, and on its under surface opposite the earth than the upper. This tends to slowly gain its equilibrium by a minute fraction of the interior electricity being at once conveyed to the surface, the further communication being delayed until the outer tension is relieved, either by slow dissipation or by self-discharge. When thousands of these electriferous globules again further coalesce into rain-drops, a great and sudden increase of tension at their surface takes place. This train of events would correspond pretty well to the mental phenomena which it is wished to ascribe to it. The greatest sense of dread precedes by a considerable time the actual fall of rain; this slowly passes off as the electrical equilibrium is gained, to be succeeded by a more acute sense of fear immediately before the fall of rain, and immediately relieved while it is falling. Those in robust health, whose mental equilibrium is not easily disturbed, probably experience no sensation that they take any account of. Those, on the other hand, of more nervous disposition, or in any way out of health, it is suggested, probably associate the sense of dread with some other cause, thus increasing their mental distress, and so justifying the use of the term useless conscience. It is probable that it occurs to most of us at times to feel an intense dread of something without being able to give any physical explanation of the fact, and where there is just ground for alarm the useless conscious steps in and aggravates that which it professes to to be anxious to cure. Numerous terms have recently sprung into use on the Continent for phases of dread experienced by that widespread functional disease, neurasthenia—such as "agarophobia," the fear of public places; "batophobia," the fear of collapse of lofty objects; "pantophobia," the dread of everything possible—but no term yet exists to designate the fear of impending rain. The attitude of the neurasthenic corresponded very closely to that assumed by Mr. Hyde, who, it may be remembered, always went abroad in lowering weather. Considerable disturbances of circulation probably accompany the tension of atmosphere above mentioned. That the feet tend to go cold before snow, and that the blood-vessels relax when it falls, is probably recognized by most persons. Deafness is more pronounced in some patients before rain, and giddiness and tinnitus are also aggravated by atmospheric tension. Some exophthalmic goitre patients are made worse in electrical weather, and in them, of course, disturbance of circulation is a prominent feature. Sleeplessness, bad dreams, the headache following the second sleep are all so frequently followed by rain that it is impossible not to associate them as cause and effect.—*London Medical Press.*

AIR SHIPS.

IS THE PROBLEM IN A FAIR WAY TO SOLUTION?

The announcement by one of the illustrated magazines of New York that four prizes, ranging from $500 to $100, will be given for essays on the navigation of the air, is a sign that the question is passing from the domain of visionary inventions into the field of realities. It means that many minds in many lands are bent on discovering the laws that govern the motion of bodies through the atmosphere, and applying them in such a way to air ships that the problem is solved. In England the inventor of the Maxim gun is not the only person who is experimenting with an air carriage greatly heavier than the atmosphere. He has been kind enough to favor this paper with two letters which served admirably in letting the public know what he does not intend to do, but kept the veil over his actual process quite thick enough to baffle those who steal inventions. Another inventor in England, however, has begun to proclaim his own ability to transport people through the air by imitating, probably in a very different and more realistic way, the mechanism of the flight of a bird. Undoubtedly it is the development of electricity which has given the spur to activity in this line more than a century after the bold ascents into the air of the brothers Montgolfier. But along with electricity for the motive power goes the improvement of materials for a very strong, very light machine. Aluminium was supposed to be the key to material, owing to its extreme lightness, but it was soon found that this virtue was offset by the weakness of that metal in tensile strength and toughness generally. It was necessary to find something quite as light as aluminium. but as strong and resisting as iron and steel. Hence the sudden disappearance of the inventors who had arranged everything nicely—with this important quality of aluminium misunderstood or forgot. Experiments have been going on for some time to mix aluminium with other metallic bases and obtain resisting power without sacrifice of weight, and, as usual, the confident speak of the results as if their aim had been reached. But even if their rose-colored claims are allowed, only one serious difficulty will have been removed. The problems of rising and falling slowly or quickly at will; of steering the car in shifting strata of air, changing in density and direction; of leaving the ground and returning to it without breaking the machine and destroying life, must be solved before applying the inventive mind to the question of freight, or the weight and size of objects of human beings to be carried. It has been proposed to divide air ships into two classes: the aeronautical, of which the ordinary balloon is the simplest form, and the aviator, which at present is much like the angel, viz., it can be made, and made with wings, but no one has seen it alive and flying. The aeronautical machine was perfected in France seven years ago to the point of traveling fourteen miles an hour in perfectly calm air, and showing remarkable obedience to the rudder. Last year Lieut. Renard published a statement that his car could be driven twice as fast. Those who study the matter are agreed that the aviator will have to be brought to at least as high a perfection as this before we can say that the navigation of the air is assured. As to aviators, there is Mr. Breary of the Aeronautical Society of Great Britain, who gets power by the recoil into its original shape of twisted india rubber, but only in small models. In New South Wales there is Mr. Hargrave, the "aeroplane" of whose flying machine is like the wings of big butterflies when sailing; he uses compressed air as a motive power, and has not yet made a machine large enough to carry a man. In Paris M. Ader is said to have constructed a flying machine by which he has raised himself sixty feet in the air and flown about 900 feet in a straight line; his machine is a monstrous thing, approximately like a bat, the operator and engine being in the body. The sailcloth screw is set in motion while the machine is running down an incline. M. Mouillard of Algiers claims to have flown short distances with his adjustable "aeroplane," a flat surface like the under parts of birds when soaring with rigid wings. One of the most curious suggestions is that of M. Gustave Trouve described by that inventor in the current number of *Popular Science Monthly.* Here the important parts and planes of a bird are imitated in the machine, but the mechanism of birds is much more deeply sought and followed than ever before. M. Trouve seems to have tried to follow the philosophy of the bird's flight inward to the very pulses of its heart. The wings of his aviator beat like a bird's and the strokes are obtained by the detonation of gunpowder or other fulminative, each explosion causing the wings to beat downward against the air. But curious and suggestive as this plan is, the fact that it has only been worked out in a model and made to act in a room puts it among the less practicable forms of aviators. Possibly the coming air ship may combine the detonator principle of M. Trouve with the aeroplane of Messrs. Mouillard and Maxim and possibly in the end some modification of the balloon principle may be added to secure buoyancy in very large air ships. We really seem to be on the verge of one of the greatest discoveries. It would be a glory to our century if the true principles were put in action before A. D. 1900.—*Times*.

A MINE OF FOSSILS.

A STRANGE FIND IN AN OREGAN DESERT.

One of the most remarkable discoveries of fossils ever made is newly announced by Professor Cope, of Philadelphia. It is a great deposit of bones of extinct birds about a small lake in the sage-brush desert of central Oregon. Now, bird fossils are very hard to find, because their bones are so light and fragile as to become easily scattered, and their bodies floated when they fell into the water, instead of sinking and becoming buried in the mud; so that they were gobbled up and digested by aligators and various other swimming animals of carnivorous inclination. But presumably because conditions were more favorable than usual to their preservation, the bones of the water-fowl and other feathered creatures which formerly lived about this Fossil Lake, as it is called, have been kept intact for centuries upon centuries, so that to-day there exists in that place the most wonderful mine of such treasures that is known in the world. The bones are found under very unusual conditions; namely, scattered among the shifting sands about the shores of the lake, instead of being contained in a matrix of solid rock. A large part of them are quite as perfect as when the fowls to which they belong died and left them behind. Their bodies became buried in the sandy bottom, where the receding water has left them high and dry. However, there are several interesting points about the remains, apart from the mere antiquity of the species they represent, many of which are new to the ornithologist. They prove that, in the time when these birds lived, that region, now so cold comparatively, was tropical. Among the species were flamingoes. Also, mixed with the bones, are dug up arrows and spear-heads chipped out of volcanic glass by human beings. The great abundance of these weapons suggests that they must have been shot at the game, both winged and otherwise, which in former time frequented the lake. No such things are found in the soil in the surrounding region. Therefore, the query offers itself, How long ago did man inhabit that part of the country? Was he a contemporary with these ancient birds and with the numerous extinct mammals whose remains are discovered about the water's edge? It was a strange collection of creatures that once gathered about this small lake in Oregon, as the bones they have left behind them show. There were herds of horses which resembled zebras and quaggas, though whether they were striped or otherwise colored, nobody can tell. Four species of camels there were, some as big as the largest which exist to day, while the smallest was about the size of a Virginia deer. Whether they had humps or not it is impossible to know. In those times the whole country from New Jersey to Florida, and as far west as California, was overrun with camels. The farther back one gets in their history by digging for their fossils, the smaller they seem to have been, just as was the case with the horse, which was no bigger than a fox originally. The "bone yard," as the shores of Fossil Lake are locally called, was originally discovered by cattlemen who were looking up stock which had wandered into this uninviting region. Their attention was excited by the multitude of skeletons which were distributed around, and they carried off many of the best specimens. Subsequent explorations, by Professor Condon of the University of Oregon, and Professor Cope, have produced remains of several varieties of lamas, mammoths, giant sloths as big as oxen, and ever so many other astonishing curiosities. This great sloth, like the megatherium, which was as big as two elephants, and others of its kind, lumbered along with its hind feet turned inwards, club-foot fashion, this structure being designed by nature to aid it in clinging to the branches of trees, on the foliage of which it fed, pulling them up by the root when it was desirable. When this species lived in the Oregon desert, that section of the country was presumably a tropical garden, abloom in the neighborhood of the lake, at all events, with a luxuriant vegetation. Besides the beasts mentioned, the bone deposits show that there existed on the spot many extinct dogs, otters, beavers, pocket-gophers, and meadow mice. Of birds there were, in addition to the flamingoes, herons, looms, divers, gulls, terns, swans, cormorants, pelicans, ducks, geese, mud-hens, snipe, grouse, owls, eagles and crows. In all fifty-one specimens of birds were identified by their fossil remains, and of these sixteen never had been heard before. Two-thirds of the species are now extinct. Professor Cope describes the scene in this region of fossils as most impressive, owing to its wild desolation. As far as the eye can reach is the same sage-brush desert, the same waterless dearth-barren. Many a man has entered it, never to escape from its fatal drought, especially during the first days of the overland emigration to Oregon. The Wagontire Mountain, whose long and gloomy mass forms the northeastern horizon, owes its name to the disastrous fate of an emigrant train. Coming from the east, they reached the mountain with parched mouths and eyes aching from the heat and dust, expecting to find water for themselves and animals. But there is no water there. So the horses laid down and died, and nothing was left of the party but a few whitened bones and the iron tires of the wagon-wheels. Many experienced hunters have been lost in this desert, so easy is it to miss the few small springs that are found at remote intervals in this desolation of 150 miles in diameter east and west and north and south.

DOMESTIC DIETETICS.

SPECIALLY PREPARED, FROM PRACTICAL TESTS, FOR THE LADY READERS OF THE "AMERICAN ANALYST."

SEASONABLE FOOD.

January.

MEATS.—Beef, mutton, ham, kidneys, liver, venison sausage, pork.

GAME AND POULTRY.—Grouse, hare, pigeon, quail, chicken, duck, turkey, rabbit, geese.

FISH.—Bream, cod, crabs, eels, carp, flounder, halibut, herring, lobster, mackerel, mussels, oysters, perch, rock-fish, salmon, smelt, whitefish.

VEGETABLES.—Artichokes, beets, beans, cabbage, carrots, cauliflower, celery, garlic, lettuce, onions, parsley, parsnips, potatoes, shallots, spinach, squash, tomatoes, turnips.

FRUIT.—Apples, bananas, grapes, oranges.

PRACTICAL RECIPES.

VEAL SOUP.—Wash a knuckle of veal and break up the bones. Put it in a pot with a pound of ham or bacon, and pour in enough water to cover the meat. When the meat is ready to drop from the bones strain the soup and return it to the pot with a head of celery and three onions cut into small pieces, a bunch of sweet herbs, a carrot, a turnip, and some whole black peppers. Simmer for an hour before serving. Add some dumplings.

MUSHROOM SAUCE.—Chop fine a cupful of canned mushrooms. Put two tablespoonfuls of butter over the fire in a saucepan, and when melted add two tablespoonfuls of flour, cook for a moment, then add two cupfuls of beef stock, the mushrooms, salt and pepper, and a little lemon juice if liked.

SHRIMP PIE.—Have ready a large cupful of shrimps picked to pieces; take two thick slices of bread, cut off the crust and crumb up the rest; make it into a paste with a large spoonful of butter and two wineglassfuls of wine, with salt, pepper, nutmeg and mace to taste. Mix the shrimps with this, and bake in a shallow dish or in shells.

SPICED BEEF.—Take a piece of beef off the round and rub into it on both sides one ounce of saltpetre; then rub in one pound of brown sugar. Make a mixture of salt, a tablespoonful of allspice, two tablespoonfuls black pepper, two teaspoonfuls of cloves and one of mace. Rub this into the meat now, and let it stand for thirty days, turning it every other day, and bathing it well with the liquor that runs from it.

MOCK SWEETBREADS.—Shred fine one pound raw lean veal; add to it half a pound of marrow or beef suet, and season with pepper and salt. Beat this up very fine in a mortar, and make it into the shape of sweetbreads; beat well the yolk of an egg and dip them into it; fry them in a good deal of butter to a light brown. It will make them lighter to beat up the white of an egg and mix it with the veal and marrow.

SMOTHERED CRAB-APPLES.—Pour two cupfuls of boiling water over half a box of gelatine; add a spoonful of vanilla and one cupful of sugar. When cool beat in the whites of three eggs beaten stiff. In a deep glass dish have a quantity of preserved crab-apples placed, and pour the gelatine custard over. Place on ice until ready to serve. Quinces may be used the same way.

COOKIES.—Sift five heaping teacupfuls of flour into a pan, and rub into it a teacupful of butter; add then two cupfuls of powdered sugar, a little salt and a handful of carraway seed or currants; add a well-beaten egg and a little rose-water or vanilla, and lastly add a small teaspoonful salaratus, dissolved in a little lukewarm water. Knead well, roll out, cut into cakes, and bake in a quick oven.

LA GRIPPE, ORIGIN, HISTORY AND TREATMENT.

This disease is sometimes called Russian influenza, because it is supposed to have had its origin in Siberia. It usually occurs as an epidemic, and travels rapidly over the globe. The Italians, in the seventeenth century, called it influenza, supposing it owed its origin to some occult influence of the stars. La Grippe is said by some to come from the Polish *Crypka*, meaning "hoarse;" others recognize it in the French word "gripper," which means "to seize;" the Germans call it "blitz katarrh." It has been known in Europe since the fifth century, and invariably sweeps over the country from east to west. In the recent universal epidemic it traveled from St. Petersburg to New York in about six weeks. Its etiology is shrouded in mystery, although the generally accepted theory is that it is bacterial in its origin. The disease is, beyond question, infectious, and spreads by atmospheric influences. Some investigators claim, however, that it is contagious, and regard it as a contagio-miasmatic disease capable of being conveyed from place to place and from person to person. It would seem, however, that there must be receptivity, else why should some escape? It attacks persons of all ages and conditions, although children are more apt to be exempt. The micro-organism seems to act specifically upon the mucous membrane of the respiratory tract with which it comes in contact. Humidity of the atmosphere seems to have much to do with its development. Altitude appears to make little difference. This disease resembles materially dengue; both have, in common, sudden invasion, high temperature, lumbar and muscular pains with cephalagia. It is also analogous to the epizootic that frequertly prevails among the equine family. Measles sometimes resembles influenza, particularly when the latter is attended by an eruption. In the catarrhal or pulmonary form, there is in the onset a sense of chilliness along the spine, in some cases a pronounced chill, with high fever, sore throat, frontal headache, sneezing, pains in the limbs and various parts of the body, particularly in the thoracic region. Pneumonic symptoms occur in many patients, with frequent cases of pneumonia; severe cough, with tightness of the chest, is often present; soreness about the eyes, and all the symptoms of a "bad cold," is the usual order of things. The torpid liver is frequently a concomitant, followed, of course, by constipation. Pulmonary abscess and pleurisy are occasional results. Laryngitis, with swollen and reddened vocal cords, is often seen. The bronchitis is frequently grave. In the gastric form of the disease there is usually nausea and vomiting. The vomiting sometimes is persistent; the liver and spleen are involved, and show abnormal conditions. This disease, by proper treatment at the beginning of an attack, can be so modified as to be almost aborted. If not properly managed, influenza is particularly liable to grave complications; even in mild cases the tendency is towards prostration, and often the nervous shock is such as to materially debilitate the patient. The best germ-destroyer we have for the microbe of influenza is in the shape of Ayer's Ague Cure. Expectorants should be administered, Ayer's Cherry Pectoral being the best, as it is a carefully-prepared medicine and contains the most approved expectorants. A mild cathartic, at the first attack of the disease, will be beneficial. The best and safest to use is Ayer's Cathartic Pills. And when recovering from this disease there is nothing better as a tonic alterative than Ayer's Sarsaparilla; it is also the best preventive, as it fortifies and strengthens the system.

FOOD AND HEALTH EXPOSITION.

ALL BUT THIRTY IN THE ONE HUNDRED AND FIFTY SPACES RENTED.

The second Food and Health Exposition of the Retail Grocers' Union will be opened to the public March 5. The managers have secured the Lyceum from March 2, in order to give exhibitors ample time to prepare their stands. Out of 150 spaces all have been rented but about 30. One of the features of the Exposition will be a model grocery store, which will display in the most attractive manner the latest appliances in the grocery business. Among the exhibitors are M. J. Heinz Co., Franco-American Co., Colgate & Co., National Starch Co., Hecker & Co., Charles B. Knox, Armour & Co., N. K. Fairbanks & Co., H. M. Anthony, Genesee Fruit Co., Excelsior Cocoanut Co., Greenville, Perrin & Co., C. W. Kopf & Co., Walter Baker & Co., Standard Butter Co., Durkee & Co., Snider Preserve Co., Malted Milk Food Co., N.Y. Condensed Milk Co., Cowdrey & Co., Patent Cereal Co., E. C. Hazard & Co., Martha Washington Flour Co., H. Maillard, Enoch Morgan's Sons Co., Cleveland Baking Powder Co., Fleischmann & Co. (yeast), American Biscuit Co., New York Biscuit Co.

BUSINESS NOTES.

AN INTRODUCTION

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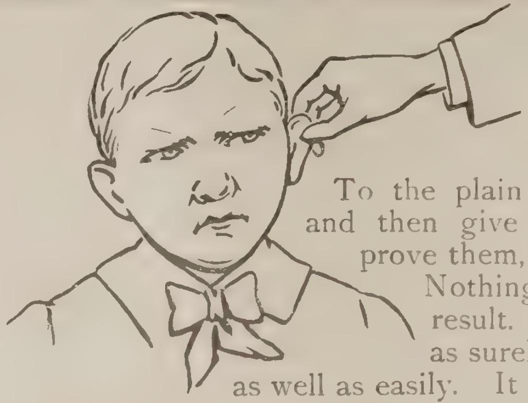
OLD ENGLISH.

A FINE GENTLEMAN OF THE GEORGIAN ERA.

Roughly speaking, a fine gentleman of the Georgian era ordinarily began the day about ten o'clock in the forenoon by a general reception of visitors in his dressing chamber, having first fortified himself for the arduous task by swallowing a cogue of Nantsey. When the last batch of callers had taken their departure he arose and placed himself under the superintendence of his valet for about two hours. Now was brought into requisition his extensive assortment of perfumery—oil of Venus, spirit of lavender, attar of roses, spirit of cinnamon, or eau-de-luce, among others—with which the various articles of attire was severally and carefully sprinkled. Then, as now, there were in vogue certain sweetly-scented soaps, which were largely patronized by fashionable beaux, and with a cake of one of these he freely lathered his hands and face. He next dabbed his face with scented powder till it was as white as that of a miller, and plastered his hair with scented pomatum, and having perfumed his pocket-handkerchief with rose or jessamine water, tied his cravat and adjusted his periwig, he finally sat down to dine about three, either alone or in company with his friends. The repast concluded, he buckled on his sword, brushed his hat with much care, gave it the "cock," placed it with great ceremony on his head, and for a brief space surveyed himself in the mirror. When quite satisfied with his appearance the beau took up his cane, ordered a sedan-chair, and proceeded in state to some coffee-house in the neighbourhood of St. James's (generally White's) where for about an hour he aired his political views, or tickled the ears of the company with choice samples of his wit and pleasantry, intermingled with jests from the newest play or the gist of the latest scandalous story that had been circulated. Then this "killing creature," having first smeared his upper lip with snuff, hailed a chair and was borne along to the door of the playhouse, where, instead of attending to the performance (his mind would have recoiled with horror at the thought) he wandered from pillar to post, now laughing and chatting with his friends, and then pulling out by turns his watch and pocket handkerchief. When the play concluded the beau usually repaired either to the coffee-house or to the residence of some boon companions, with whom he spent the remainder of the night, lending a hand at crimp, ombree, loo or whist, over bowls of punch and bottles of claret, until the small hours of the following morning—not unfrequently being conducted reeling home by a friendly watchman, bribed with sixpence for the purpose.



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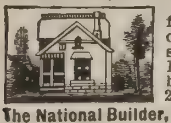

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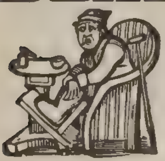

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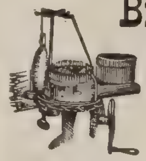

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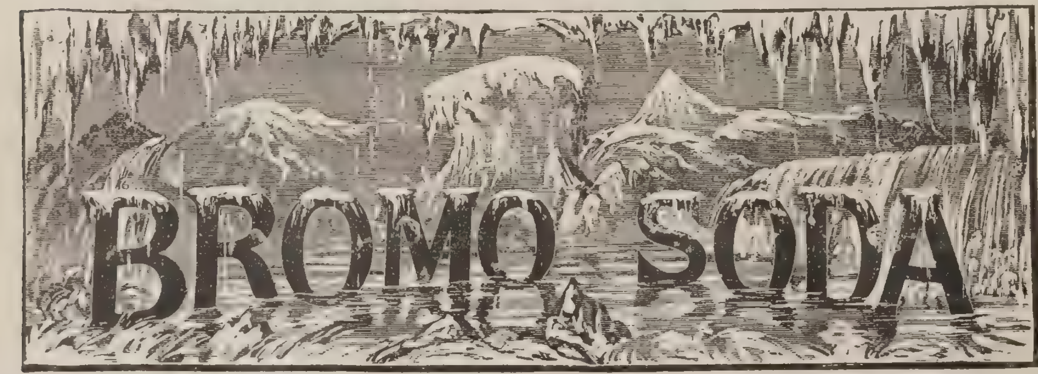

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CONTENTS.

Aluminum 51
Bright Stories
A South Sea Witch 53
Domestic Dietetics 55
Editorials 49
To Prohibit Adulterated Olive Oil; The Keeley Cure.
Effect of Tight Boots 54
Evolution of a Newspaper Statement 56
Fireproofing of Tissues 49
Gold Indelible Ink 50
How the Pyramids were Built 52
How to Judge the Quality of Condensed Milk 52
Interesting Gleanings in Insect Life 52
Marsala Wine 50
The Marseilles Soap Industry 54
Nature and Treatment of Stammering 54
Oranges from Arizona 52
Razors 54
Some Common Errors in Feedings Infants 51
Syndicate Business 53
Trees Struck by Lightning 51

TO PROHIBIT ADULTERATED OLIVE OIL.

The following from the *N. Y. Tribune* suggests that while the evil sought to be remedied is undoubtedly great, the remedy is worse. The oleomargarine law is an unjust law, and adulterated olive oil is not by any means to be compared to oleomargarine. This is a pure, wholesome article made as a healthy substitute for a dear article. It is a perfect substitute, and when sold as such should not be discriminated against by class legislation. The oleomargarine law was passed to curry favor with the dairy interests of the country, and farmers are beginning to find out that their supposed friends in Congress who passed this iniquitous law, while apparently benefitting them by removing a competitor to their butter, have seriously injured the cattle interest, and have lowered the price of cattle without producing a corresponding lowering of the price of meat. This was because one of the most profitable customers for the caul fat has been cut off, leaving the meat to pay for the cattle alone. The only legislation which will effectually remedy the evil of adulterated oil is to make it a penal offense to sell as olive oil any other oil. The adulteration of olive oil is extensively carried on in Europe as well as here, and is materially aided by the bad custom prevalent in this country among the grocery trade of knowingly selling bogus brands of olive oil. A great deal of so-called Italian and French olive oil is bottled in New York out of cottonseed oil barrels. The only remedy we know of now is for our readers to buy only those oils bearing the label of some well-known house.

Dealers in olive oil in this country want a law, similar to the oleomargarine law, to protect the genuine product against the competition of the bogus article, of which cottonseed oil is the chief ingredient. "The consumption of olive oil in the United States," said Antonio Zucca, an importer, of No. 2 Bridge Street, this city, "during the last five or six years has greatly increased. This is probably due to the growth of the foreign element in the States, and also for the reason that well-to-do people have learned to use olive oil in the preparation of vegetables, etc. There is nothing better or more healthful can be used for salads and for cooking certain dishes than pure olive oil. The demand for this article in recent years has been so great that speculators have undertaken to adulterate and mix the pure olive oil with the cottonseed and other cheap oils, and label the packages with some Italian or French brands so as to misrepresent the article to the public as pure olive oil. Why not have our legislature enact a law, similar to the oleomargarine law, punishing anybody who uses the words 'olive oil' on cottonseed oil? The public would be greatly benefitted by such a law and, in my opinion, every merchant and every institution interested in the suppression of adulterated articles should agitate the matter and ask the legislature for proper protection in this respect." Three-fourths of the olive oil used comes from Italy, but the enterprising orchardists of California have lately set out great numbers of olive trees, and are yearly increasing their output.

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THE KEELEY CURE.

The subjoined extracts from the medical press give an idea of what the profession think of this craze. We can add, however, that they are on the wrong track. There are some things about this Keeley cure which have not been published yet, and which, if generally known, would cause serious thoughts, and perhaps some legislation that might be necessary for the safety of the community. We have good reason to believe that this Keeley cure is the old Russian remedy of nitrate of strychnia. Any one acquainted with the dangerous nature of this drug can imagine that the administration of it by a hurried and inexperienced practitioner to a man with a run down coustitution, and suddenly leaving off again, is not altogether as safe as some might think. We are looking up the matter, and hope to be able to publish a full *expose* shortly.

The New York *Sun* and the Chicago *Herald* stand alone among the great daily newspapers in demanding that Dr. Leslie E. Keeley prove himself the benefactor of mankind, which he claims to be, and make public his treatment for alcoholism. In an interview published in an evening paper in this city recently, Dr. Keeley posed as the possessor of a secret revealed by the Most High for the good of the mothers, wives, and sisters of men. In this the *Herald* sees cant, pure and adulterated, and says so in the plainest of English. Just as these powerful moulders of public opinion take so decided and reasonable a stand comes the news of the death of Col. Mines, the most noted apostle of the "cure." The current number of the *North American Review* contains an article by Col. Mines describing the treatment and lauding the inventor in the highest terms. At the time the *Review* went to press Col. Mines was rolling in the gutter from which he was fished, sent to Blackwell's Island where he died from alcoholism. He belongs to the "5 per cent.," for whom Keeley claims there is no cure. Returns from other members of the "5 per cent." will continue to come in. Dr. Waugh finds good in the agitation of the Keeley cure because it will attract attention to the treatment of inebrity and to the work done in that speciality by Crothers and others. The public will learn in time that there are men in the ranks of the regular profession who are not the possessor of revelations from On High, but who, nevertheless, treat and cure inebriates.—*West. Med. Reporter.*

The so-called bichloride of gold treatment of inebriety, for which so much has been claimed, and to which the newspaper press has given so much prominence, proves to be a rank humbug. Bichloride of gold, though a chemical possibility, is impossible therapeutically, as the preparation reduces and becomes inert the moment the chemical bichloride transformation is effected. It is stated that the remedies employed by the manager of the institution, which has been chiefly identified with this treatment at Dwight, Illinois, are the hypodermatic use of cocaine and administration by mouth of the so-called bichloride of gold, which a recent analysis reveals to be a weak solution of aloin in water combined with comp. tr. cinchona. The only gold used in the treatment is that supplied by the dupes in the form of fees. The favorable effects of this treatment are in part due to the action of cocaine, but chiefly to the mental effect on the patients who, emotionally stimulated by faith in the promised cure, are enabled to gain temporary control of their habit. The lay and religious press have given the chief quack and his humbug an amount of free advertising beyond computation. The Secretary of the State Board of Health of Illinois is authority for the statement that the manager of this institution at Dwight was refused a license to practice medicine in Illinois.—*Med. Age.*

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FIREPROOFING OF TISSUES.

A GOOD SUGGESTION.

At the Berlin exhibition of means and contrivances for the prevention of accidents in industries and otherwise, prizes were awarded for the following processes for fireproofing, respectively diminishing the combustibility of tissues, curtain materials and theatrical scenery, viz: 1. For light tissues: 16 lbs. ammonium sulphate, 5 lbs. ammonium carbonate, 4 lbs. borax, 6 lbs. boric acid, 4 lbs. starch, or 1 lb. dextrin, or 1 lb. gelatine, and 25 gallons water mixed together, heated to 86 deg. Fahr., and the material impregnated with the mixture, centrifugated and dried, and then ironed as usual. One quart of the mixture costing about 3 or 4 cents is enough to impregnate 15 yards of material. 2. For curtain materials, theatrical decorations, wood, furniture: 30 lbs ammonium chloride are mixed with so much floated chalk as to give the mass consistency; it is then heated to 125 deg. to 140 deg. Fahr., and the material given one or two coats of it by means of a brush. A pound of it, costing about 8–10 cents, is sufficient to cover 5 square yards.

READ PAGE 58.

MARSALA WINE.

WHERE AND HOW IT IS MADE.

Americans visiting Palermo, if interested in vine culture and wine manufacturing, should take a train for Marsala and spend a few days in the Province of Trapani in order to understand the entire history of the bright, clear, topaz-colored "Marsala" from its birth to its consumption on their own tables. It is a curious fact that in this province, where wine abounds, where every peasant and laborer drinks one or two glasses twice per day, you never meet a drunken person. Sicily, once the granary of the Romans, has been for many years unable to compete with America and Russia in wheat. Once the largest cultivator of tobacco, the Sicilians have ploughed up their plantations since the Italian government, extending its monopoly to the island, rendered its culture unprofitable and irksome, owing to the fiscal regulations introduced. Then, with the vine disease in France, came large demands for Sicilian wines, less for actual consumption than for the manufacture of French wines made from the juice of the Italian grape. Hence, wheat fields, sumach plantations, and, alas, olive, lemon, and orange groves were ploughed up, and in five years the amount of land laid out in vineyards was nearly doubled. One-tenth of the entire island is vineland; of the Province of Palermo, one-sixth; probably one-fourth of the Commune of Marsala is devoted to the culture of vines. Indeed, the whole of the flat, stony country is honeycombed with vineyards, the vines being planted about a metre and a half apart at right angles, each vine being in the centre of the hollow; the soil hoed four or five times a year, so as to keep the roots free of weeds, and so placed as to catch all the moisture of dew and rainfalls, exposed at the same time to the scorching sun rays of the summer months preceding the vintage. Here peasant proprietors are very numerous, as the capital required is not large. A peasant can build his own house cheap with the sand-stone of the country—square stone buildings of one story, with slanting roofs, one, two, or three rooms sufficing, according to the size of the family. In the same room you see the *palmento*, or wine-press, one or two metres high, paved with brick or stone, with a clay pipe inserted in a hole for the must to run into the vats; on the opposite side of the room, the *torchio*, or squeezer, where the husks, put into rough rush baskets, are piled and squeezed; then the remainder are dried and sold for the extraction of cream of tartar. This is the home of the poorest peasantry; the men sleep in one room, the women in another; all live exclusively on the produce of the vineyard, so that the price of the must is the great question of the year. In larger vine-farms the *palmento* is in the courtyard, and the pipe leads off the must into the cellars. The process is still very primitive. The wine-maker steps into the press with thick, heavy, hobnailed boots, holding a stick wherewith to balance himself, and treads out the juice till no more can be expressed. This first must is kept separate from the remainder obtained by the crusher, as the latter is not approved of by the tasters and purchasers, who detect it at once. It is while the grape-treading goes on that the peasant adds the *gesso*, or sulphate of lime, about which there is such a hue and cry just now, and which is forbidden by law save to the extent of two per thousand. It has been used from time immemorial to prevent the wine from turning acid in the fermentation. The manufacturers of Marsala say that some difference ought to be allowed for their strong wines in comparison with the weaker wines of continental Italy, and are already complaining that the enforced absence of *gesso* detracts from the preservation of the must. It is certainly the only extraneous matter introduced into Sicilian wines, as the abundance is such that the country people never make the second wine, as in the north, by the addition of water and sugar, Indeed, since the decreased exportation, owing partly to the rupture of commercial relations with France, and partly, nay, chiefly, to the fact that the French have conquered the vine diseases and replanted their vineyards, there is often more wine than receptacles to hold it. As a rule, the small producers sell their wine when it is a few days old to the large wine manufacturers, of which the chief in Marsala are the well-known firms of Woodhouse, Ingham Whitaker, and Florio, who, according to their own special receipts, make the wine known as Marsala under different names. To John Woodhouse, the son of a Liverpool merchant, belongs the merit of the first *baglio*, or wine factory, at Marsala, which he established in 1773; his wine purveyor supplying the fleet in 1800. The success of the Woodhouses soon attracted another Englishman to Marsala, and Benjamin Ingham, of York, soon vied with his rival, devoting the greatest attention to the amelioration of the manufacture of wine. Reading his rules to-day, we can only wish that they were applied rigorously to all wine manufactories throughout Italy. They are strictly adhered to by all the great manufacturers of Marsala wine, but, alas, too much neglected by the small producers, who do not take care of the cleanliness of their vessels, nor attend to the very necessary caution of propping up the branches of the vines when the grapes are ripening, so as to avoid the earthy taste of the wine. Benjamin Ingham was the first to initiate the wine trade with the United States, Brazil, and transatlantic regions in general. He it was, also, who first noted the praiseworthy efforts of Vincenzo Florio, now a name of world-wide renown, and here called the "Father of Sicilian commerce." So far from showing any jealousy, Ingham joined with him in the attempt to create a navigation company, now the hope and pride of Sicily. Vincenzo Florio, nothing daunted by the old-established manufactories or *baglios* flourishing at Marsala, pitched his tent in the midst, *i.e.*, built his *baglio* precisely between those of Woodhouse and Ingham. And to-day, as I write from the terrace of the *baglio* Ingham Whitaker, side by side with that of Florio, now the property of the grandson millionaire, and can see the Woodhouse establishment beyond, a fresh proof of the affinity between the Italian and Anglo-Saxon natures is afforded. These three houses are rivals; each desires that his special Marsala shall supply native and foreign markets; yet there are no petty squabbles, no tricky manœuvres to undersell each other, and in all that relates to the workmen, who are well paid and cared for, to the fixing of the price of must, to the benefit of Marsala, the three firms work hand in hand. Not long since they spent 50,000 lire in paving the chief street of Marsala, subscribing in equal portions. Many foreigners who come to Marsala to buy the "virgin wine" complain that these big *baglios* put the prices too high, and that, but for the three managers of Ingham Whitaker, Florio, and Woodhouse, they would be able to purchase from the vine growers at far lower prices. This is one of the beneficial effects of the harmony reigning between the English and Italian houses. The price of "natural" wine has fallen off fearfully since 1884. At times it has been as high as 130 lire; last year it fell to 50 lire per butt of four hectolitres; this year it is fixed at 55 lire. The three managers meet and agree to what will be a fair price, and below that no one is able to go. If these big purchasers undersold or rather underbought each other, the poor vine-growers would be reduced to the pitiful state of the proprietors of the wine district of the Puglie, who, with some fifty millions of new wine in their vats, have to sell it at 20 and 30 lire per butt, and think themselves lucky if they find amarket at that price. Some of the grapes are grown on the estates of the three firms; many more purchased. The chief object of this is to obtain the first must, which, as soon as it is expressed from the grapes, is carried to immense copper cauldrons, well tinned, and there heated artificially till the must in the three cauldrons is reduced to the capacity of one, and becomes a thick, clear syrup, sweet and bright. The Marsala as we know it is a composition of old wine, of which the *baglios* have each a separate store kept in enormous casks, never full to the brim lest the wine should lose its bouquet. Some of these wines are fifty-five years old, and as this is taken out for use the casks are replenished with wine never less than six years old. With the old wine is mixed the newer growths, and, according to the tastes of the various markets, more or less of the sweet liquor is added, more or less alcohol, which is entirely distilled from wine on the premises. In olden times much of the spirit was purchased from abroad, but since the imposition of enormous duties to the amount of three times the value of the spirit, the manufacturers find it safer and cheaper to distil their own. This also is heavily taxed, but not in so high a proportion. For the wine exported the tax is refunded, and here the English houses have the advantage, as most of their wines go abroad, whereas that of Florio, which is most popular in Italy, gets a drawback of only 20 or 30 per cent. on home manufactured alcohol. The manufacture of Italian brandy is now begun by this enterprising Florio firm, so that pure brandy will soon be obtainable in Italy in place of the poisonous stuff now sold as French brandy. This will be made exclusively from wine distilled on the premises. It is not yet on sale, as the firm determined not to put any in the market under three years old, but it will doubtless oust French productions from the Italian markets. Perhaps one of the greatest arts of the trade is the faculty of tasting the wines at the various country vineyards. This once done by the manager in person, the firm sends its own casks to receive the wine, the firms often advance money to wine-growers in order to help them, and buyers and sellers are on most excellent terms. Apart from this Marsala manufacture, a new attempt is being made by small Italian firms to sell the natural wines of the year—the *vin di taglio*, as they are called. The French say that they no longer need Italian wine, but that they buy it under the rose is pretty well ascertained. A number of Swiss came over with the intention of setting up an establishment, but found it easier and cheaper to purchase from a firm which hitherto had dealt only in *vin di concio*. Lipari & Co. agreed to furnish pure Sicilian wine of the year at moderate prices, and they have already shipped thirty thousand hectolitres to Marseilles, whence it is *supposed* to pass to Switzerland. If this traffic increases, it will be of immense importance to the vine-growers, who have abandoned, as was said, their old crops for this almost too exclusive culture of the vine. I am speaking now exclusively of Marsala, where these *baglios* form a distinctive feature in the landscape. All are huge edifices, situated on the sea with quays and wharfs in front; they are well secured by walls and gates, the outside walls loopholed, with towers at the corners well able to defend the enormous amount of wine in the magazines, valued in each at from $2,500,000 to $3,000,000. Until the last fifteen years the defence was sorely needed.

GOLD INDELIBLE INK.

HOW TO MANUFACTURE IT.

The *Prague Rundschau* gives the following:

1. Chloride of gold and sodium	1 part.
Water	10 parts.
Gum	2 parts.
2. Oxalic acid.	1 part.
Water	5 parts.
Gum	2 parts.

The cloth or stuff to be written on should be moistened with liquid No. 2. Let dry, and then write upon the prepared space with liquid No. 1, using preferably a quill pen. Pass a hot iron over the mark, pressing heavily.

ALUMINUM.

IS IT TO BE THE METAL OF THE FUTURE?

Among the exhibits at the International Exposition held at Paris in 1855, there were few more interesting than a small bar or ingot of a silver white metal—aluminum—labled "L'Argent de L'Argile," or, silver from clay. This was the first specimen of that metal that had ever been produced, although it is the most abundant metal in nature: Professor Clarke, of Washington, estimates that the earth's crust contains 7.81 per cent. of aluminum, and 5.46 per cent. of iron. The first suggestion that alumina, the basic substance of clay was metallic, was made by Professor Baron in a communication to the *Academie Royal* in 1760, in which he stated that he believed a metal to be part of the constitution of the base of alum, and that although he had failed to reduce it, he believed that in the future it would be done. The revelations in chemistry made by Lavoisier and Dr. Priestly in 1780 indicated that the earthly basis were probably metallic oxides, and alumina was thenceforth looked upon as being the oxide of a metal which had not been isolated. Many experimenters at once set to work to reduce the metal, but no one succeeded in finding an element with such affinity for oxygen that it would take it away from alumina, and so leave the aluminum free. But, in 1824, Oersted, a Swede, combined aluminum with chlorine, and, in 1827, Prof. Wohler, of Gottingen discovered that metallic potassium had such a strong affinity for chlorine that it would take it out of the aluminum chloride, and leave the metal free. But Wohler's was only a partial victory. He passed the vapor of potassium over the aluminium chloride, and although it removed the chlorine, it lost the aluminium as a fine metallic powder, which resisted all his efforts to fuse it into a lump. Twenty-seven years later Deville repeated the experiment, and then reversed the process, sending the chloride as a vapor over melted potasssium, and obtained a button of aluminum. The metal thus produced costs more than its weight in gold, but Deville now set to work in earnest in search of a cheaper process. He melted aluminum chloride mixed with common salt, and subjected the liquid to the decomposing force of an electric current. Again he obtained aluminum, but this was before the days of electric machines, and the cost of electricity from a battery made the metal very expensive. Deville then went back to his first method, but substituted the cheaper sodium for potassium, and produced a larger quantity of aluminum, some of which was cast into the ingot displayed at the exhibition, and some worked into a baby rattle, which was beautifully chased and presented to the Prince Imperial. The emperor was interested, and furnished funds for the prosecution of Deville's experiments. After two years experimenting the manufacture was commenced on a commercial scale, and aluminum was produced for about eight dollars a pound and sold for twelve dollars. Numerous experiments were made in other directions, especially with cryolite, but the Deville process held the lead, and was introduced by Sir Lowther Bell into England in 1859 and worked until 1874. Meantime—that is in the years 1865 to 1885—machines for generting electric currents cheaply in large quantities had been wonderfully improved, and the cost of electrolytic methods in metallurgy wonderfully reduced. In 1885, the Messrs. Coles, of Cleveland, Ohio, devised an electric furnace in which it was possible to decompose alumina directly. A mixture of alumina and carbon is heated to incandescence, and a powerful electric current passed through it. The carbonic acid passes off, leaving the alumina free. It is not possible to collect this ilumina into a fluid mass, but if copper or iron has been charged into the furnace with the alumina, alloys of those metals with aluminum are obtained. This is a practical process and has been operated at Lockport, New York, for many years; but now that aluminum can be bought for fifty cents a pound, metal workers desiring alloys prefer to buy pure aluminum and make their own. Simultaneously improvements were made in electrolytic methods, and the cost of producing sodium was reduced from a dollar to twenty-five cents a pound. This brought the selling price of aluminum in England down to five dollars a pound. Steady advances continued to be made until the introduction of dynamos, generating electricity from natural forces, led to the invention by Mr. Heroult of a process of making pure aluminum by utilizing the force of the Rhine falls at Neuhausen for the generation of electricity in dynamos. His poocess was identical with that of Mr. Charles M. Hall, of Oberlin, Ohio, who. in 1886, applied for a patent covering the decomposition by electricity of a fluid bath consisting of aluminum fluoride and sodium fluoride in which alumina had been dissolved, and after a conflict with Mr. Heroult, who applied for a similar patent, Mr. Hall was allowed priority of invention. The process is now installed on a large scale, and has reached its climax of simplicity. By the sodium process aluminum was finally produced at a dollar a pound, but the electrolytic processes have fairly driven it out of the field. The alloy processes are still in operation, but the writer is of opinion that they will soon be eclipsed by the pure metal processes. Aluminum is only one-third the weight of iron, resists the action of many strong, corrosive agents, and is on these grounds superior to any other metal for innumerable purposes. One of its most important uses will probably be for cooking-pots; but almost every day some new uses for which aluminum is particularly suited come to light. Its alloys, too, some of them, exhibit very remarkable properties. Aluminum will probably never be the universal metal that iron is, but I am confident that in another ten years it will be regarded as one of the common metals of every-day life, and that in after years its discovery will stand out as one of the great achievements of this wonderful century.—*Cosmopolitan.*

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SOME COMMON ERRORS IN THE FEEDING OF YOUNG CHILDREN.

THE PREPARATION OF THE MILK.

In a recent lecture reported in the *Practitioner* for July, Dr. Cheadle draws attention to certain points in the feeding of infants in regard to which faulty and injurious practices prevail. One of the most frequent sources of disaster is the sudden weaning with the use of fresh cow's milk and water. The massive curds formed from cow's milk are frequently beyond the feeble digestive powers of the infant. Dilution will partially remedy the matter, but cannot, as a rule, be carried to a sufficient extent without unduly increasing the bulk of the food. The clots, by decomposing, cause colic, vomiting and diarrhœa. Boiled milk not only is to a certain degree stertilized, but clots less firmly than raw milk. Children should be weaned on boiled milk and barley water. In the case of very young or delicate children, however, the milk should always be peptonized at first, a proper degree of dilution being observed at the same time. There is danger here of another grave error—the prolonged use of artificially-digested foods. While these preparations do excellent service in the case of children just weaned or with small digestive power, they are not proper for continued use. The power of digesting casein becomes gradually less, nutrition is impaired, and the child tends to become flabby, anæmic and soft in bone. Still another error consists in the furnishing of an insufficient gross amount of nutritive material. A child may be unable to digest a mixture of milk unless highly diluted, but the capacity of the stomach being limited, it may be impossible for it to take a sufficient quantity of such a mixture to supply the material required for growth and nutrition. The difficulty may be overcome by the addition of cream or some good preparation of meat juice, the quantity of milk being increased as the digestive powers develops. Food deficient in fat, as well as that deficient in protein, is certain to cause trouble. Fat especially is of great importance in the food of young children. Those deprived of these two elements are often large and fat, but flabby, anæmic and rachitic; yet most of the artificial foods upon which childred are so largely fed are almost wholly lacking in fat and to a less degree in proteids. The presence of an anti-scorbutic element in the food is also a matter of prime importance. Fresh milk contains the elements in sufficient quantity, but all farinaceous foods and all the dry artificial foods, are decidedly deficient in this regard. They require the addition of some fresh element to supply the anti-scorbutic quality.—*N. Y. Med. Journal.*

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TREES STRUCK BY LIGHTNING.

THE POPLAR AND OAK ATTRACT IT THE MOST.

The traces left on trees that have been struck by lightning vary with the kind of tree, the age, and location. The season, too, that prevails plays a conspicuous part in this matter. The Italian poplar (*Populus pyramidalis*) is most endangered by lightning. The cause lies not so much in its slender shape as in the fact that it has a very much ramified set of roots. The poplar grows in the most fertile and moist portions of ground, and not without distress does the farmer observe that the beautiful tree which stands by the wayside near his field interferes sadly with the growth of his crop. The wood of the poplar is therefore full of sap and moisture, and the tree is a splendid lightning-conductor. The tracks of the lightning are found in the lower parts of the poplar exclusively. Without deviation one or more rents run down the trunk of the tree to the roots; the bark is torn off and the wood exposed a distance of from six to twelve inches. About half-way down the rent a gap of the depth of about an inch is noticeable, the edges of which are somewhat burned. The top of the tree is uninjured; the branches show no rents, but remain healthy, the leaves green. Colladon, the famous French natural philosopher, has made the effects of lightning upon trees a profound study, and in one of his works he reports several instances wherein the bolt passed by a number of taller trees other than the poplar, striking the latter in its descent to the ground. Surrounded by a hedge running from south to north, grew a poplar twelve to thirteen feet high. On the other side, about twelve feet away from this tree, stood an oak and a plum tree, both of which were higher than the poplar; nevertheless only the latter showed signs of having been struck by lightning, while the other two trees were left unmolested. The highest point is, therefore, not always the one most exposed to lightning, and only when all other circumstances are equally favorably does height cut any figure. It is generally believed that a tree struck by lightning is doomed to decay, but such is not the case. The injured parts, and those connected directly with them, are frequently damaged in their growth, but the tree as a whole suffers only in cases of very intense strokes. The young shoots on the branches that have received the severest shock grow as a rule larger than on the other portions of the tree, and the buds are of a lighter weight. Next to the poplar the oak is the tree most exposed to the effects of lightning, but the marks left behind differ greatly from those of the poplar. As in the other case, there are conformities to the general law. Oaks spread out at the top and the branches shoot up vigorously to the highest point. While the top of the poplar that has been struck by lightning remains hale and keeps on growing, the injured branch of the oak dies very soon. The rent begins away up near the top, running to the ground spiral fashion, exposing the wood all the way from ten to twelve inches, and often more. About the centre of the course appears a cap about one-half inch deep, which runs parallel with the fibres of the tree.—*St. Louis Post-Dispatch.*

HOW THE PYRAMIDS WERE BUILT.

A NEW THEORY.

A moneyed man, who was looking recently at the process of laying an artificial stone pavement in front of one of his many properties, startled the friends who were standing about him by remarking: "I believe that the Egyptian pyramids were built in just that way." Pressed for an explanation, he said that while he had never been in Egypt he had read the works of all Egyptologists, including Brugsch and Piazzi Smyth, and had never found in any of them a theory which would satisfactorily account for the manner in which the pyramids were constructed. Now," he said, "you must remember that the pyramids were built of stone which bears no resemblance to anything found within 500 miles of their location. It is incredible that the Egyptians of 4,000 or 5,000 years ago should have possessed the mechanical ingenuity to move these enormous blocks of stone from the granite quarries of Abyssinia or Syria to the pyramids. Is it not much more natural to suppose that the ancient Egyptians possessed the secret of making artificial stone and that the pyramids were constructed by layer upon layer of Nile River mud, hardened by just such processes as we employ to make artificial stone? It is a much more plausible explanation of their construction than the laborious and unintelligent suppositions that the stones were carried across the desert to form the foundation and base of the pyramids. I firmly believe that the Egyptians of the anti-Christian era understood the manufacture of artificial stone, and that they built the pyramids out of it.—*Philadelphia Press.*

ORANGES FROM ARIZONA.

LARGE SHIPMENTS EXPECTED NEXT SEASON.

Much interest has been caused in green fruit circles by the arrival of a shipment of fine oranges "Washington Navels" from a new orange-growing district, near Phoenix, in the Salt River Valley, Arizona. Efforts are being made to introduce them this season in order that arrangements may be made for large shipments next season. These oranges are ready for shipment about the middle of November, and are believed to be the earliest fully matured oranges in the United States.

These trees were planted in April, 1889, and were two year old buds when planted. A partial crop was gathered in December, 1890, and this year quite a large crop was gathered, and the Arizona oranges were in the California market before the California oranges ripened. The threat of competition is causing some uneasiness in California. The San Francisco *Bulletin* of a recent date in speaking of the possibility of the orange business in Arizona, says: "Orange producers South, and in the upper counties as well, are viewing with no little concern the increasing orange-producing area of Southern Arizona. Oranges were ripe in the Salt River Valley, near Phoenix, on November 20. Some of them have just reached Secretary Lelong, of the State Board of Horticulture. He admits their evident merit, and praises their size and high color. They are juicy and sweet. Some of the navels are four inches in diameter. They grew in a sixteen-acre grove, nine miles northeast of Phoenix. The grove was planted in April, 1889. The trees were two year old buds on old stock They bore a few oranges last year. It is claimed that oranges will ripen here as early as November 15. These are believed to be the earliest matured oranges in the United States. The Phoenix Board of Trade is making great capital out of the orange, fig and raisin possibilities of that country. There are now over 600 acres planted in oranges and lemons near Phoenix." The Salt River Valley, in the vicinity of Phoenix, Arizona, promises, it is said, to be one of the most productive fruit-growing regions in the country. A gentleman who has spent some time in that part of the country says that the traces of a prehistoric irrigating system are easily traced throughout a wide area. The present settlers had only to clear off the bushes from the so-called dessert, and they found the surface of the earth over hundreds of thousands of acres smoothed and graded so that it only required the opening up of canals and ditches to make every rod of land available for agricultural purposes. Some idea of the nature of the work of the ancients may, he says, be gathered from the fact that one company removed the sand from an old canal which had been cut through rock for a long distance, and thereby saved $25,000 expense. "How did a people without explosives or iron implements accomplish such wonderful work? Extensive mounds mark the ruins of towns, where once dwelt a large population. The pottery found in the ruined buildings is, in many instances, almost an exact duplicate in form and ornamentation of pottery found in Crete, the product of the early Phoenicians, now displayed in the Metropolitan Museum of art. The climate of the Salt River Valley for nine months of the year is very delightful, frost being of rare occurrence. Strawberries may be had from the vines during every month in the year. Several varieties of grape vines bear two crops; ripe peaches may be gathered from June to December, and with its abundance of fruit and the amazingly rapid and luxuriant growth of almost everything produced in field, orchard or garden, this region of our country is destined hereafter to attract wide attention. The oranges sent to New York were grown in an orchard of twenty acres, the location of which was an arid dessert on the first day of January, 1889. A small crop was produced last year, and this year a larger one, and Arizona oranges were for sale this fall in Los Angeles before the California fruit was ripe. The oranges, as you see, are of fair size, bright, smooth, juicy and well flavored, and before long we may expect to see Arizona fruit occupying a prominent place in this market."

INTERESTING GLEANINGS IN INSECT LIFE.

FROM DIVISION OF ENTOMOLOGY U. S. DEPARTMENT AGRICULTURE.

THE BEST MOSQUITO REMEDY.

Mr. C. H. Russell, of Bridgeport, Conn., has recently communicated to us the following interesting fact: A very high tide recently broke away the dike and flooded the salt meadows of Stratford, Conn. The receding tide left two lakes nearly side by side, of the same size. In the one lake the tide left a dozen or more small fishes, while the other was fishless. A recent examination showed that while the fishless lake contained tens of thousands of mosquito larvæ, that containing the fishes had in it no larvæ. An Englishman living on the Riviera, according to a correspondent of *Nature*, having been troubled by mosquitoes, discovered that they bred in the large tanks kept for the purpose of storing fresh water, which is rather a rare commodity at this Mediterranean resort. He put a pair of carp in each tank and succeeded in this way in extirpating the insect pest. The utilization of fish in this way is an old suggestion, and a very practical one under some circumstances. Many people suffer from the mosquito plague when the insect breeds in a circumscribed and easily accessible place, and where it could be destroyed by some such method as that used by the level-headed Englishman.

A VEGETARIAN MOSQUITO.

A friend of mine, a physician of St. Louis, who is interested in entomology, made a business trip to New York about the end of last August, and there, while taking supper at a restaurant, had occasion to notice at his table a mosquito which, after hovering around some time, alighted on a boiled potato which had been peeled and was still warm. The insect repeatedly plunged its sucker into the tuber, and the act lasted long enough for the proprietor of the place, who had been called by my friend, to also observe it and establish the fact that the Culex was *making a vegetarian repast.* It is admitted that country mosquitoes are sometimes obliged to content themselves with the juices of the plants which grow around their haunts, but have those of Gotham become so sybaritic as to appreciate the nutritive qualities of the potatoes stripped of their jackets? The story was told me by a person whom I have no reason to suspect of telling fairy tales, and I do not think it impossible. If you think the incident will interest your readers you might relate it to them, and perhaps other curious observations of a similar nature will be reported by others.

Reply.—We are obliged to you for the account of the mosquito which ate boiled potatoes. As you say, the statement that country mosquitoes sometimes feed upon vegetable juices is well understood, but it is always supposed that they prefer animal blood; consequently, that the New York individual should ignore the numerous sanguinary opportunities about him and should partake of such a civilized meal is certainly exceptional. Many insects which annoy man normally feed on vegetable juices.

THE ELECTRIC-LIGHT BUG.

Inclosed please find an insect which is known as the "electric-light bug." No one with whom I am acquainted ever saw the insect until the steamers which run Red River put on the electric light. They fly against the lights and are killed thereby, and fall upon the boat's deck * *

Reply.— * * * The insect sent is one of our largest water bugs, and is commonly known as the giant water bug. Its scientific name is *Benacus griseus*, and it is frequently attracted to the electric lights in cities, but except as attracted to light is seldom met with. The name electric light bug is, therefore, not at all inappropriate. This insect lives in the water, both in its early stages and as an adult, and feeds upon other water insects and small fishes.

HOW TO JUDGE THE QUALITY OF CONDENSED MILK.

SOMETHING FOR HOUSEWIVES.

The general appearance when poured from a spoon should be glossy; the more glossy the better. It should be ropy or stringy like very heavy syrup. The color should be that of cream, but the colors varies according to the season of the year in which the milk is condensed, the same as the milk not condensed varies in color. Milk is more yellow in summer, when cows are on pasture, than in winter, when they are fed on dry hay. Thickness varies with age. Thickening by age is natural to condensed milk; rapid thickening only proves that the milk is preserved in the best manner, and that it retains in the highest degree the characteristics of milk in its natural state. Condensed milk which does not thicken by age, or which thickens very slowly, is milk abused in the process of condensing. Consumers make a great mistake in supposing that the thinnest condensed milk is the best. The thinnest condensed milk contains the most water, and of course, less of milk solids or nutritives. The thickest condensed milk, if in sound condition, is the most valuable. There is a degree of thickness, however, that is inconvenient. If condensed milk is so thick that it will not run out when an open can is inverted, it is troublesome to dissolve. If it is not actually hard, very little stirring in the can will render it sufficiently liquid for convenient use. Condensed milk, if properly done, does not destroy cream globules, but leaves the constituents of milk unaltered and natural. One method, therefore, of determining the relative quality of different samples of condensed milk is to ascertain the amount of butter that can be made from each.—*Scientific American.*

THE SYNDICATE BUSINESS.

HOW COMPANIES ARE PROMOTED, AND THE PUBLIC IS GULLED.

In these days of capitalizing all kinds of business, good, bad and indifferent, from a system of railroads down through the various grades of breweries, grocery shops, cordage works, stove foundries to laundries, and we do not know what else, it may be interesting and instructive to read what an English paper has to say about the way these things are done in England. The question naturally arises how many of these same concerns we have in this country. A little reflection and mental comparison may throw considerable light on some mysteries in that line here. Of all the ways of making money, company-promoting is, perhaps, the most curious, and the latest phase of this particular class of enterprise deserves to be noted. A syndicate in Manchester is circularising business houses, pointing out the advantages to be derived by converting private concerns into limited liability companies, and advising early action in view of the changes in the law which are expected. The circular is in two parts, one setting out the general question, the other being apparently varied so as to appeal directly to special business. The one which has found its way to this office is intended to appeal to proprietors of newspapers, who are told, in view of the approaching general election, that they could make some money by converting their businesses and selling the shares to candidates for Parliamentary honors. The candid suggestion of venality in this is very funny. It may be interesting to a number of readers who have had no inside experience of the class of conversion to which we are now referring, if we give a brief outline of how the thing is worked. Let us say that Jones and Brown are leather merchants doing a fairly large business, but an unremunerative one, and they have but small, if any capital. A company is formed by getting seven signatures on a piece of paper, and registering the same at Somerset House. Then the old business is transferred to the company, and the partners have no personal liability in respect to the future. Then they go to a money-lending concern, and offer to pledge all the assets of the company for, say £10,000 in debentures. The company demand an "investigation fee," say £500, and finally the money is lent on some such terms as these :—An eight per cent. debenture for £100 to be given for every £90 advanced, the debentures to be redeemed by annual payments of £2,000, and the accountants of the debenture holders to be the auditors of the company at a remuneration of £250 a year. A little calculation will show how exorbitant these terms are, but they are quite usual, and would be considered moderate in many cases. If the company fails to meet its annual payments, a receiver for the debenture holders takes possession, and he generally manages to get himself also appointed liquidator as well. Then he winds the company up, repays the debenture holders in full, and spends the balance in expenses. Right up to the moment of the crash the trade creditors have thought the business to be prospering. The ready money obtained by the issuing of the debentures absolutely bolstered the credit of the concern, instead of weakening it as it should have done, because it was not known that such securities were in existence. The partners save their private estates, and all the loss falls upon the trade creditors. This has been the history of too many industrial companies, and we are very much afraid that we shall have a good many such cases in the near future.

Normal —Old Lady—Doctor, do you think there is anything the matter with my lungs? Physician (after careful examination)—I find, madam, that your lungs are in a normal condition. Old Lady (with a sigh of resignation)—And about how long can I expect to live with them in that condition?

BRIGHT STORIES.

A SOUTH SEA WITCH.

"Do you believe in witchcraft?"

"Not a bit. Why do you ask?"

"Because we are coming to a place where everybody does; according to the old saying, what everybody believes must be true."

"Well, I don't care. Nothing will ever make me believe in such rubbish. Produce your witches and I shall be most happy to try conclusions with them."

"Don't be too confident. You haven't got through all your experiences yet. There are more things in heaven and earth than are dreamt of in your philosophy."

It was a careless, chaffing sort of conversation between a friend and myself, as we lay under the awning on the deck of one of Her Majesty's cruisers, in full view of a lovely, palm-covered island, almost on the equator, towards which we were running before a gentle breeze.

My friend was an officer in the navy, who had spent years among the islands of the Pacific and knew almost all that could be known about them and their inhabitants.

I was very much surprised, therefore, to hear him speaking in this serious way about practices which I supposed were the commonest kind of imposture. I had often heard of the so-called witches and sorcerers of the Solomon Islands and other equatorial groups, and I knew that they had unbounded influences over the natives. But this was the first time I had ever realized that that influence could extend through Europeans, especially to a strong-minded, hard-headed man of the world, thoroughly familiar with savages and all their tricks.

However, I soon learned from his remarks that he was quite in earnest, and this made me all the more curious to witness the so-called manifestations of witchcraft.

Towards evening we came to anchor in a beautiful bay, entirely sheltered by a coral reef, and landed upon a silvery beach close to a village of huts, nestling among feathery cocoanut palms and tropical growth of brilliant coloring. The place was a paradise of beauty, and we had nothing to complain of in the people. They were almost entirely naked and very graceful in figure, while among the younger ones were many comely faces. They welcomed us with quiet cordiality and vied with one another in their offers of hospitality. After a supper of fish and fruits I suggested to my friend, who spoke the language fairly well, that he should inquire whether there were any witches in the neighborhood.

The first words he spoke on the subject had an extraordinary effect on the natives. Instantly they showed a deep interest in us, but at the same time I could see that they themselves were becoming strangely excited. They told us that there dwelt upon their island the most powerful of all witches, one who practiced magic of every kind, and who could inflict death by her mere will, and also bring back the dead to life.

When I proposed that we should then and there pay a visit to this terrible sorceress, and see for ourselves what she could really do in the way of witchcraft, such horror fell upon them that I was sorry I had not been more cautious. Most of them left the hut trembling and groaning, and fled into the woods. Those who remained hid their faces in their hands, and went through bodily contortions, as if they were writhing in fear and pain.

At length, after much persuasion, accompanied by various presents, they consented to guide us to the witch's abode, though it was expressly stipulated that not one of them should be required to approach it.

We started from the village by a steep path through the thicket, and were soon on an elevated plateau several hundreds of feet above the sea. The party consisted, besides the natives, of my friend, the lieutenant, a boatswain's mate, accounted the strongest and sturdiest man in the ship, and myself. I also had with me my dog Tim, a faithful but exceedingly fierce and wiry bull terrier, which had never shrunk from mortal foe.

The night was oppressively hot, and the heavy scent of the spice trees and tropical flowers was overwhelming. It was a relief when we arrived at an open space, where the forest had been cleared and where the sea breeze was able to penetrate. At the farther end of this space, partly hidden in creepers and palms, stood a large building, with a conical roof not unlike a gigantic bee-hive. Our guides hastily told us that that was the temple, the witch's haunt, and before we could make any further inquiries they had vanished. Without further ado we crossed the open space and knocked loudly at the entrance of the temple, which I now saw was built of the largest sized bamboos and thatched with palm leaves.

All had been in darkness before, but the moment our sticks rattled on the bamboos the whole building seemed to burst into light—not the ruddy glow of a fire or a pine torch, such as is commonly seen in native huts, but a cold, white light, with a peculiar, quivering appearance, as if it were radiating from the earth. At the same time we heard a strange sound from the interior of the temple, like a chorus of voices, singing several words in a low key, followed by a prolonged cadence or strain of music. The lieutenant evidently was very uneasy, and I was alarmed to see how pallid and anxious he looked in the lurid light that seemed to come from the bamboo walls of the temple, and enabled us to see one another just as plainly as in daylight.

He strongly urged that we should push our adventure no farther; but I laughed at his fears and again knocked with a loud rat-tat-tat with the knob of my walking-stick. Again there was a swelling chorus of song, as if fifty powerful voices were singing in unison; what the words were I could form no idea, but they gave something of the sound of a Latin chant in some great church, while the strain of music that followed was like a dozen harps being played together.

The white light changed at the same time to a faint blue, and I suddenly became aware of a perfume, exquisitely delicious at first, but soon becoming so concentrated that it made me reel as if half-drunk, with a most painful feeling of sickness or faintness. Recovering myself with a great effort, I pushed aside the heavy mat that hung over the entrance and walked into the building, followed by my companions.

I could hardly believe my senses when I found we were in total darkness. The light which had shone so brightly outside of the building gave not the slightest glimmer inside. Neither was there any of that perfume there which had been almost insupportable in the open air. I had brought with me two large ship's candles and a box of wax matches, and I was about to strike a light when I became aware of a weird kind of luminous glow on the ground, as it seemed, at some distance in advance of where we stood. I stepped towards it, and I saw that it was rapidly increasing. I can compare it to nothing better than luminous vapor, rising from the earth in spiral columns, which formed a semicircle at the extreme end of the building.

I now saw we were in a vast structure of bamboo, the walls covered with plaited leaves and the cavity of the roof forming a lofty dome. At the first glance the place appeared to be absolutely empty, not a single object of any kind appearing on the whole expanse of earthern floor, which extended for at least one hundred feet each way.

Walking towards the light, however, I saw in the midst of the semicircle formed by the spiral columns of vapor or luminous smoke a figure which filled me with the strangest sensation I had ever known. It was that of a woman with all the roundness of youth, and with singularly regular and well-shaped features. The bust and limbs were as finely formed as those of a Greek statue; but she was of gigantic stature and of a dusky brown color, and was crouched upon the floor with her legs crossed and her arms folded in a particularly ungraceful attitude. She wore not a particle of clothing of any kind, except a necklace of glass or crystal balls, as large as oranges, and a wreath, or diadem, of the same in lieu of the simple chaplet of cocoa leaf with which the native girls usually confine their magnificent hair.

This woman's hair was drawn closely round her head by her glittering coronet, and thence fell in wavy masses over her shoulders and down her back until it lay in heaps upon the ground. What startled me most in her appearance was that the crystal balls around her head and neck were filled at rapid intervals with pink and green lights, making them look like electric lights or gigantic opals, and casting a radiance about her which was dazzling to gaze upon. She seemed to be asleep when we approached, but as soon as I set foot inside the luminous space she raised herself to the full height of a kneeling posture, and opening a pair of large, dark eyes, bent on me a glance of anger and hatred such as cannot be described.

I met it, nevertheless, as boldly as I could, for after all, I said to myself, it was only a woman I had to deal with. In a few moments her eyelids drooped, her head languished on her bosom, and she sank once more into the crouching attitude in which we had found her.

She gave me the impression of being intoxicated with some drug; yet her teeth were beautifully white, not blackened with chewing bhang nor red with juice of betel, and when she did open her eyes they were full of life and fire.

I ventured to reach out my hand towards hers with some idea of waking her up and making a friendly approach; but in an instant her eyes were glaring at me like hot coals, and though I had not touched her I felt a thrill and a stiffness in my hand and arm exactly like a sharp shock from an electric battery.

It was now nearly midnight, and from the tumult of the elements we knew that one of those terrific storms which are common on the equator had come on since we ascended the mountain.. The huge temple shook and creaked, and the crash of the thunder vied with the roar of the wind and the rattle of the rain.

I turned round and asked the lieutenant whether it would not be as well to inquire about accommodation for the night. Witch or no witch, she might at least let us know where we could sleep. I could see that he was terribly frightened, and what surprised me more, I noticed that the boatswain's mate was affected in the same way. My bulldog, too, was trembling and whining, with his hair standing on ends, and his mouth foaming, as if he were going mad.

(*To be Continued.*)

THE NATURE AND TREATMENT OF STAMMERING.

SCIENTIFIC METHOD.

Emil Behnke (*Jour. Laryngology and Rhinology*, July, 1891) has recently declared that the terms stammer and stutter should indicate the same condition, rejecting a former distinction that stammer should refer to that form of obstruction in which there is inability to pronounce vowels, and stutter to that form of impediment in which the consonants are at fault. The causes of these disturbances are attributable to the nervous centres controlling the mechanism of respiration, phonation and articulation. Children afflicted with stammering do not, as a rule, outgrow the habit; ridicule or severity will increase the difficulty. Conditions needing surgical or medical interference, such as spinal curvature, post-nasal adenoids, decayed teeth, intestinal worms and phimosis, may prevent cure of stammering until their removal. Cases of stammerers are divided into two classes—those in which fault lies in management of respiratory apparatus, and those in which it does not. In the former the prognosis is more hopeful. To test patient, he is placed flat on his back upon a couch, and is drilled in methodized and graduated series of sounds and inspiration, produced by diaphragm and muscles of abdominal walls, the hand of the trainer upon the epigastrium accentuating these movements. If, after such practice, the patient shows improvement, a favorable result may be expected from treatment. In those cases in which obstruction does not depend upon imperfect respiration, Behnke attributes much of the trouble to "an involuntary exaggeration of all the stops and checks taking place in vocal apparatus from glottis to lips, and he must therefore be trained to make these closures as shortly and lightly as possible." Thus a short aspirate may be inserted after a consonant; as G-h-eorge, instead of George, or, as patient would say, G-g-g-eorge; and p-h-a, instead of pa. Stammerers sing and whisper without difficulty, because in singing there is almost continued tone, and in whispering there is absence of tone. It is advised to dwell on vowels at expense of consonants—and if vowel difficult to sound, it should be preceded by a short inspiration. Another beneficial exercise is to speak slowly, with teeth overlapping and pressed tightly together. Result of treatment influenced by severity of case, intelligence cf patient, also existing morbid conditions, especially those due to chorea or other nervous disturbances.

RAZORS.

PECULIARITIES OF THE STEEL.

The finest grades of razors are so delicate that even the famous Damascus sword blades cannot equal them in texture. It is not generally known that the grain of a Swedish razor is so sensitive that the general direction is changed after a short service. When you buy a fine razor the grain runs from the upper end of the outer point in a diagonal direction toward the handle. Constant strapping will twist the steel until the grain appears to be straight up and down. Subsequent use will drag the grain outward from the edge, so that after steady use for several months the fiber of the steel occupies a position exactly the reverse of that which it did on the day of the purchase. The process also effects the temper of the blade, and when the grain sets from the lower and outer point toward the back, you have a razor which cannot be kept in condition, even by the most conscientious barber. But here's another curious freak that will take place in the same tool: Leave the razor alone for a month or two, and when you take it up you will find that the grain has assumed its first position. The operation can be repeated until the steel is worn through to the back.—*San. News.*

THE MARSEILLES SOAP INDUSTRY.

ITS HISTORY.

The manufacture of soap is one of the oldest industries of Marseilles. For a long time Venice and Genoa had the monoply of this manufacture, but towards the sixteenth century two foremen from Toulon came to settle down at Marseilles. As they did not possess much capital, they installed themselves in an old house near the main road, and set up two boilers, in which they manufactured from the oils of Provence a white soap which was used by the inhabitants of the town. They had to pay at that time a duty of 1¼ *fr.* per quintal upon these oils. The industry did not extend much until, a number of years later, some merchants with apital developed it by building better works, providing more suitable implements, and bringing over workmen from Genoa who were adepts in the art of soapmaking. They were so successful that the manufacturers of Toulon and other places in Provence were obliged to have recourse to the use of a mixture of fat and butter in order to sell their goods at the same price as that of Marseilles. This kind of adulteration gave rise to such complaints that Louis XIV. issued an edict, dated October 5th, 1688, in which the factories were placed under state supervision. This rigorous measure had the effect of increasing their number and improving their product, which now quite eclipsed that of Genoa. The deterioration of the olive trees which followed in 1709 was another source of advantage to the Marseilles soapmakers, who monopolized the foreign oils which were in demand owing to the failure of the olive crop. Thus the only thing that remained was to counteract the competition of Spain whose special brands enjoyed an excellent reputation and were much depended on. To accomplish this the manufacturers of Marseilles taking advantage of a strike, offered a high salary to a Spanish workman to come to Marseilles and manufacture soap according to the process in Vogue at Alicante, which was a town of much repute in soapmaking. The foremen of Marseilles profited so much by the information gained from this foreigner that they were in a short time able to equal the products of Alicante, and also invented a new kind—a pale blue soap which sold for £3 per quintal. Then it became the custom to buy at Marseilles, where there was a good market for blue, mottled, and white soaps, and in the year 1760 the town possessed twenty-eight factories, capable of producing 300,000 quintals of soap. The usual consumption did not exceed 200,000 quintals which represented then a sum of £4,500,000, and that exported £200,000. Twelve hundred men were employed in the manufacture of soap, in which the porters of Piedmont had replaced convicts who were employed before the suppression of galleys.—*Chem. and Drugg.*

THE EFFECT OF TIGHT BOOTS ON BODY, SOUL AND SPIRIT.

PHYSIOLOGICAL REASONS.

This is what a physician says about tight boots and shoes: "It is impossible to stand or breathe aright if the feet are pinched. When correct posture and breathing are interfered with, the circulation is impeded, and deleterious substances in the blood tend to make the complexion bad. This is one of the many evils of tight shoes. To be well shod has a marked influence on style. The feet symbolize the body in their way as much as the hands. A clever shoemaker says that in a well-fitting shoe the human foot feels like a duck's foot in the mud; it is held firmly in place, but nowhere compressed. Nothing can exceed the vulgarity and hygienic wickedness of a shoe that is manifestly too tight. For misery-producing power, hygienically as well as spiritually speaking, perhaps tight boots are without a rival." Here, again, we learn on high authority how important a factor in human existence and human happiness is the foot-gear of mankind. Some one may say, "We breathe with our lungs and not with our feet." That may be, but I have myself observed how tight boots control the breathing arrangements of men and women. Instead of drawing a full breath with expanded chest, the sufferer walks humped-backed, and gasps at every step, "Ah!" "Oh!" "Ugh!" etc, I don't know about the blood making the complexion bad, but the pain of the toes makes the face long and painfully serious. Then on the spiritual aspect of the question the doctor is also right, for it is hardly conceivable that tight boots can tend to spirituality, whether in or out of church. I commend the extract quoted to boot-makers to put in their window as a reason why the public should only buy their own particular good-fitting boots as tending to physical, moral, spiritual and eternal welfare. But you must use your own discretion as to the inelegant metaphor of the duck's foot in the mud.

DOMESTIC DIETETICS.

SPECIALLY PREPARED, FROM PRACTICAL TESTS, FOR THE LADY READERS OF THE "AMERICAN ANALYST."

SEASONABLE FOOD.

February.

MEATS.—Beef, mutton, ham, kidneys, liver, venison sausage, pork.

GAME AND POULTRY.—Grouse, hare, pigeon, quail, chicken, duck, turkey, rabbit, geese.

FISH.—Bream, cod, crabs, eels, carp, flounder, halibut, herring, lobster. mackerel, mussels, oysters, perch, rock-fish, salmon, smelt, whitefish.

VEGETABLES.—Artichokes, beets, beans, cabbage, carrots, cauliflower, celery, garlic, lettuce, onions, parsley, parsnips, potatoes, shallots, spinach, squash, tomatoes, turnips.

FRUIT.—Apples, bananas, grapes, oranges.

PRACTICAL RECIPES.

TAPIOCA CREAM SOUP.—Sprinkle four tablespoonfuls of soaked tapioca into a quart of strong, clear beef soup while it is boiling. Simmer for ten minutes, then add half a cup of cream in which is beaten the yolks of two eggs. Serve at once without boiling again.

CREOLE MUTTON CHOPS.—Cut some mutton chops rather thick, and pour over them enough pure vinegar, in which some onions are sliced thin, to cover them. Let them stand for three days. Heat up a cup of this mixture with a cup of clear soup; add the cutlets, and let them cook for fifteen minutes. Make a brown sauce by browning some flour in a saucepan, and when quite brown adding enough melted butter to make a thick paste; stir it constantly, and let it cook for fifteen minutes. Pour into this the cutlets and their sauce, and let them boil up. Toast some slices of bread, pour the cutlets over them, and serve very hot.

SQUASH.—Pare a squash, or a part of one, take out the seeds, and stew it slowly, until quite tender, in just enough water to keep it from burning. Drain it well, squeezing out all the water possible, then season it with butter, salt and pepper.

STEWED MACARONI.—Put your macaroni to boil in just enough water to cover it; when it boils hard drain off the water and put it to cook again with milk instead of water, and quite a lump of butter. Let it cook until thoroughly tender, then mix into it a little rich cream, some sugar and nutmeg.

CUP CUSTARDS.—Put a quart of milk to boil with a bunch of peach leaves or a vanilla bean. When it has boiled up well strain it and let it cool. If the peach leaves or vanilla bean are not procurable, use the milk without boiling and flavor with vanilla. Beat eight eggs very light, and stir them into the cold milk; add a quarter of a pound of sugar. Fill some stone china cups with this mixture, set the cups in a pan of water and bake for about fifteen minutes. Serve cold, with nutmeg grated over each.

COCOANUT DROPS.—One pound grated cocoanut, half pound powdered sugar, whites of six eggs beaten to a stiff froth. Drop in buttered pans and bake.

A DELICIOUS COCOANUT PUDDING.—Buy a fine, large, fresh cocoanut; drill it at the eye and drain out the milk, which should afterwards be strained. Crack the shell and leave the meat of the cocoanut in large pieces; with a sharp thin knife pare away the brown outer skin, and then, by the aid of a coarse grater, grate the whole of the nut until it almost cames to a pulp. Upon this pour the strained cocoanut milk, and toss it about with a fork to loosen it thoroughly, when again strain away the milk. The nut is now ready for further use. Take the yolks of six eggs and one pound of coarsely-grained white sugar; beat these together until they form a cream, and then into it, very gradually indeed, and by careful beating smoothly incorporate half a pound of finely ground rice flour. When these are all thoroughly amalgamated, and, in fact, are too stiff to allow the beating-fork to be moved with freedom, add a slight dusting of powdered cinnamon, a wineglassful of orange-flower water, the strained juice of a good sized orange, and the whole of the grated cocoanut. Now blend all thoroughly, well butter a dish, turn the whole of the ingredients into it, and bake in a moderate oven. This may be eaten hot or cold.

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HOW INSECTS BREATHE.—Take any moderately large insect, say a wasp or hornet, and when we can see, even with the naked eye, that a series of small spot-like marks run along either side of the body. These apparent spots, which are generally 18 or 20 in number, are in fact the apertures through which air is admitted into the system. Sometimes they are furnished with a pair of horny lips, which can be opened and closed at the will of the insect: in other cases they are densely fringed with stiff, interlacing bristles, forming a filter which allows air, and air alone, to pass. But the apparatus, of whatever character it may be, is always so wonderfully perfect in its action that it has been found impossible to inject the body of a dead insect with so subtle a medium as spirits of wine. The apertures known as "spiracles" communicate with two larger breathing tubes, or "treachea," which extend through the entire length of the body. From these main tubes are given off innumerable branches, which run in all directions, and continually divide and subdivide until a wonderful intricate network is found prevading every part of the structure, and penetrating even to the antennæ and claws.—*Chas. F. Sanborne.*

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THE EVOLUTION OF A NEWSPAPER STATEMENT.

A CIPHER'S DIFFERENCE.

The absurd statement that some one in Arizona had captured a butterfly which he had sent to the Smithsonian and received in exchange for it a few days after a check for $1,500, probably had its origin in a statement published over a year ago that the expedition to Australia in search of Vedalia cost some $1,500; in other words, that Vedalia might be called a fifteen-hundred-dollar insect. This curious error is equaled by one which we have just noticed in a recent (New York) paper, where the following statement is made: "It is estimated that the cereal crop of Canada has been damaged fully $38,000,000 by insects." This is a plan perversion of a statement made by Mr. James Fletcher in his annual address as president of the Association of Economic Entomologists, delivered at the meeting held in Washington in August last, which has received wide newspaper comment. Mr. Fletcher, however, said that one-tenth of the agricultural product of the United States, namely, an amount of the value of $380 000,000, is lost through insect ravages. By a very general error in the first newspaper statement concerning this address, the amount was placed at $38,000,000 instead of $380,000,000. Since then the fact that Mr. Fletcher is Dominion Entomologist of Canada seems to have been responsible for the mistake of transferring this loss from the United States to Canada, while in some manner the damage, instead of applying to the total agricultural product, has been restricted to the cereal crop. This is a striking illustration of the worthlessness of many of such uncredited statements in the newspapers and of the manner in which newspaper paragraphs are sometimes evolved.—*U. S. Dept. Agr. Rec.*

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CAUTION:—Be sure the word "Horsford's" is on the label. All others are spurious. Never sold in bulk.

CONSOLING.—Passenger in cab to driver, "Say, driver, the roof of this cab leaks, the rain comes in with a rush, is it always so?" Cabby, "Always so? No, only when it rains."

HOW FAR BEES TRAVEL.—The distance traversed by bees in pursuit of honey is surprising to a person unfamiliar with the habits of these busy workers. A bee-keeper one morning dredged the backs of his bees with flour, as they were leaving the hives. He did this by a preconcerted arrangement with a friend who had a fine clover field in bloom forty miles away. The day following the experiment, he received a letter from his friend, stating, "There are plenty of your white-jacket bees here in my clover." It was truly a wonderful instinct that sent the bees so far away from home in quest of honey.

WOODS THAT SINK.—There are 413 species of trees found within the limits of the United States and territories, sixteen of which when perfectly seasoned, will sink in water. The heaviest of these is the black ironwood (*Condalia ferrea*), found only in Southern Florida, which is more than thirty per cent. heavier than water. Of the other fifteen, the best known are the lignum vitæ (*Guaiacum sanctum*) and the mangrove (*Rhizophora mangle*). Texas and New Mexico lands, full of queer, creeping, crawling, walking and inanimate things, are the homes of a species of oak (*Quercus grisea*), which is about one and one-fourth times heavier than water, and which, when green, will sink almost as quickly as a bar of iron. It grows only in mountain regions, and has been found westward as far as the Colorada desert, where it grows at an elevation of 10,000 feet

BUSINESS NOTES.

AN INTRODUCTION

to the through car service of the Wisconsin Central Lines and Northern Pacific Railroad is unnecessary. Its advantages and conveniences have been fully established. It is the only route to the Pacific coast over which both Pullman Vestibuled first-class and Pullman Tourist Cars are operated from Chicago via St. Paul *without change.* Through train leaves Chicago every day at 10 45 P. M. The traveler via this route passes through the most picturesque, interesting and prosperous belt of country in the Western World. There is scenery with most striking contrasts that range from the rolling prairie and the pine forest level to the wildest passes of the wildest mountains in the world. There is a series of the noblest cities, towns and villages of every variety and size, from the hamlet or the tiny farm, upward; the richest mines in the world; the greenest and most lasting pasturage; the wildest scenery on the continent; canons as weird as a nightmare; hills, snows and peaks startling in the magnificence of their beauty, and a perfection of comfort in traveling that has never been surpassed. Fast train via the Wisconsin Central Lines for St. Paul, Minneapolis, Ashland and Duluth leaves Chicago at 5.00 P. M. daily with Pullman Vestibuled Sleepers and the Central's famous dining cars attached.

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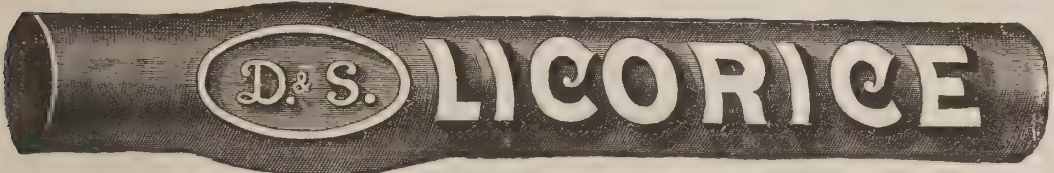

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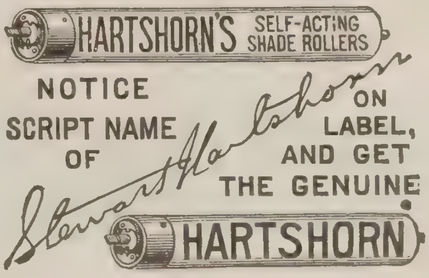

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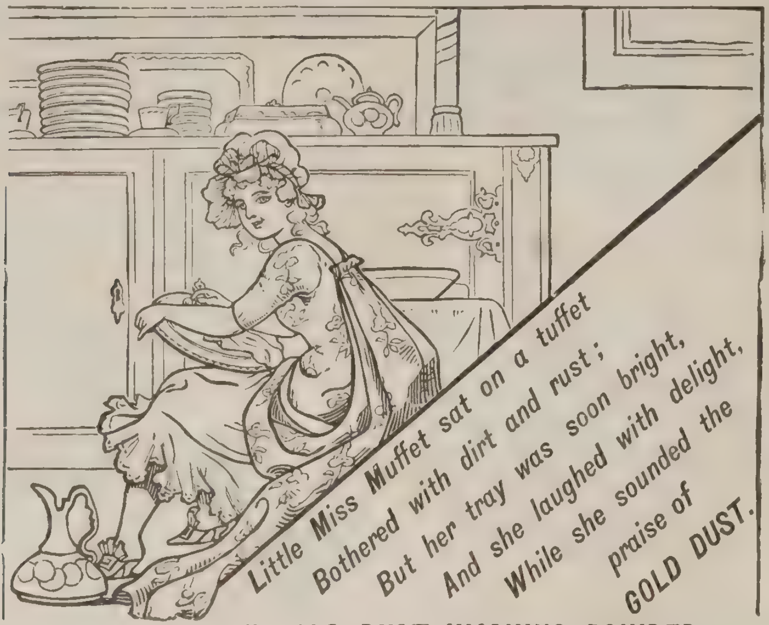
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CONTENTS.

Ancient and Modern Gunpowder 66
Bright Stories
A South Sea Witch.—(*Concluded.*) 64
Borax 63
California Cork 67
Domestic Dietetics 65
Editorials 61
Dust in the Atmosphere; Adulterated Cocoa.
Honey Beverages 65
Impure Air 66
Perfumes of Antiquity 62
Sleep and Sleeplessness 64

DUST IN THE ATMOSPHERE.

Professor Aitken, an English scientist, shows the air to be full of minute particles of dust. Outside air at Colmonell, in Ayrshire, contained from 8,000 to 155,000 particles. Near Falkirk the smoky atmosphere showed from 180,000 to 2,296,000 particles per cubic inch. Glasgow air showed from 2,750,000 to 7,500,000 per cubic inch, and Edinburgh air from 750,000 to 4,000,000. In the meeting-room of the Royal Society, when showing the Fellows his experiments, 4,500,000 were counted just before the meeting, 6,500,000 near the close of the meeting, 49,000,000 near the ceiling just before the meeting, and 57,500,000 near the ceiling at the end of the meeting. In his own laboratory he calculated 30,000,000 of dust particles in the cubic inch of air; near the ceiling, 88,000,000; and above a Bunsen flame the infinite number of 489,000,000. A cigarette smoker sends 4,000,000,000 of particles into the air with every puff he makes. Mr. Aitken's observations, during the summer of 1889, were made on the continent to find out the minimum number of particles in natural air untouched by artificial causes. At Hyeres, near Toulon, the number per cubic inch varied from 48,000 to 384,000; the latter when the wind was blowing from the town. At Cannes the lowest observation was 24,000, when the wind was blowing from the town The sea air at Hyeres contained 28,000; at Mentone, 80,000, with a steady wind from the sea, and at Cannes double that number. At Lucerne, in Switzerland, the specimens of air tested were remarkably free from dust; on the Righi Mountains the minimum was 3,360 particles. In the purest Highland air in Scotland tested by Mr. Aitkens he found the minimum to be 32,000 particles per cubic inch.

ADULTERATED COCOA.

There are two ways of treating the cacao bean, from which, by a process of roasting and grinding, what is known in the trade as cocoa as well as chocolates are made. One of these ways is honest and harmless, the other is positively injurious, and is only practised in order to increase the profits of the manufacturer. As our readers well know, all cacao contains a large amount of fatty matter known as cacao butter. This not being very digestible, manufacturers try to rid their product of a portion of it. The good old fashioned way is to extract it, which though an expensive way produces a wholesome cocoa. The Dutch manufacturers, however, have sought to escape this expensive mode, and adopted a system of saponification, which, in plain English, means converting a part of the cocoa into soap. This is done by adding alkalies to the cocoa butter of the cacao bean, just as the soap boiler adds caustic soda or lime to his grease and thus converts if into soap. Every housewife knows that when you put soap in hot water it is more soluble than fat. It is for this reason that the Dutch cocoa makers all advertise their product as soluble. Of course it is soluble—it is a cacao butter soap. Aside from the great saving in cost of manufacture, this process enables them to use an inferior and cheaper cacao bean, as the strong alkali covers the bad taste of the rancid or decayed bean, and yet, notwithstanding the self-evident fact that these Dutch cocoas, owing to this little trick, are not one-quarter as costly as the American made cocoas, they are sold in our stores at just double the price of the vastly superior American made goods. One of these American brands has been made by the same healthy and honest old-fashioned process for over one hundred years. Extensive advertising, the most outrageous misrepresentations, and the frequently effective fad of being a foreign made product, has enabled the Dutch manufacturers to gain a slight foothold in this country, but it has all been paid for out of the pockets of the consumers. If the pecuniary loss attendant upon buying these inferior cocoas were all, we might not deem it worth while to devote so much space to the subject, but they are most injurious to health. If it is remembered that soap is not digestible, that it contains a caustic alkali, which is capable of attacking the coats of the stomach, it is hard to conceive why a careful mother should be willing to buy soap, with all its chemical nastiness under the name of cocoa, at one dollar a pound, when she can purchase pure cocoa of well-known home make for half the price. Is it really true that Americans like to be humbugged so well that they are willing to pay double prices for injurious foreign made goods in preference to pure and wholesome food from well-known and reputable Americans? We do not believe it. To clinch our words of warning, we will add two or three extracts from foreign scientific journals showing the correctness of our position:

A writer in the *Hospital Gazette* of London (August 23, 1890), says: "We do not regard all adulterations as equally heinous. When, however, potent chemicals are systematically added, what words can sufficiently convey our indignation! . . . Cocoa of the most excellent quality and of absolute purity is now to be obtained at very reasonable prices; and no purchaser need be at any loss to get an article to which the severest tests can be applied, and which will come out triumphantly from the ordeal. We were, nevertheless, positively startled, not long since, to receive a pamphlet, bearing on its front page the names of some distinguished chemists, and addressed to the medical profession, vaunting some foreign manufactured cocoas which were distinctly stated to contain a considerable addition of alkaline salts. Surely even lay readers do not need to be reminded that soda and potash cannot be taken with impunity day after day."

The Birmingham (England) *Medical Review* for October, 1890, contains an article on "Food and its Adulterations," in which it is stated that "quite apart from any question as to the injury resulting to the human system from taking these salts it would be only right that the medical profession should resolutely discountenance the use of any and all secret preparations confessedly adulterations, and adulterations, too, of a sort not justified by any of the exigencies of the circumstances. . . . Cocoa is only to be recommended as a beverage when it is as pure as possible."

Dr. Sidney Ringer, Professor of Medicine at University College, London, and Physician to the College Hospital, perhaps the greatest English authority on the action of drugs, states in his "Handbook of Therapeutics" that "the sustained administration of alkalies and their carbonates renders the blood, it is said, poorer in solids and in red corpuscles, and impairs the nutrition of the body." Of ammonia, carbonate of ammonia, and spirits of ammonia, he says: "These preparations have many properties in common with the alkaline, potash and soda group. They possess a strong alkaline reaction, are freely soluble in water, have a high diffusion-power, and dissolve the animal textures. . . . If administered too long, they excite catarrh of the stomach and intestines."

READ PAGE 69.

THE PERFUMES OF ANTIQUITY.

BY J. CH. SAWER, F. L. S.

Probably the word "perfume" is derived from *per fumum*, "by the aid of smoke," and originated in that most ancient custom of burning resinous substances and aromatic woods in religious ceremonies, thus creating an odoriferous smoke, which was doubtless of advantage in the early form of worship as a disinfectant or deodorizer in counteracting the offensive odors of the burning flesh of the offerings. In other countries where animals were not slaughtered and burned, the incense, no doubt, acted on the mystical imagination of the worshiper, its overpowering vapors throwing him into a religious ecstasy conducive to the belief in the acceptance of his prayer as he observed the gradual ascent of the smoke from the altar and its dispersion in space. The incense ordered for the service of the tabernacle, to be burned in a censer and on the altar, consisted of stacte, onycha, galbanum and frankincense in equal parts. Stacte, which is the Greek translation of the Hebrew word nataph, signifies a liquid exudation, or something fluid. Pliny describes it as the natural exudation of the myrrh tree, flowing without the tree being punctured, and more esteemed than the myrrh itself. Theophrastus also mentions two sorts of myrrh, one liquid and one solid. Onycha is the Hebrew *Schecheleth*, "odoriferous shell." It is the *operculum* of a species of *Strombus*, formerly well known in Europe under the name of *Blatta Byzantina*, found in the Mediterranean and in the Red Sea, from which latter the Israelites no doubt procured it. It is occasionally to be seen at the Custom House of Bombay, where it is imported to burn with incense in the temples, not so much on account of any pleasing odor of its own as to bring out the odor of other perfumes. It is a white, transparent shell, resembling in shape the human finger nail. It is generally believed that the fish inhabiting this shell acquires its peculiar odor by feeding on a species of Indian Nard. Galbanum (*Chelbenah*). The word signifies something unctuous, and evidently applies to a balsam. According to some authorities it is a fine sort of galbanum found on Mount Amomus in Syria, differing entirely from the ordinary galbanum now used in medicine, of which the odor is anything but sweet. But the fashions of this world change, and if we, in our day, find no sweetness in galbanum, saffron and spikenard, it is no reason why the ancients did not, and no reason why Orientals should not, even now. At the present day the Persians call asafœtida "the food of the gods," the Russians delight in caviare, and the Esquimaux in train oil. As an example of the preservation of ancient Jewish customs, galbanum still forms one of the ingredients of the incense now used in the Irvingite chapels in London. Frankincense.—This is largely imported into London under the name of gum olibanum, and is used principally in the manufacture of incense for the Roman Catholic and Greek churches. The Latin word *Olibanum*, the Arabic *Luban*, and analogus words in other languages are all derived from the Hebrew *Lebonah*, which signifies milk, in allusion to the sap of trees, which, before becoming dry by exposure to the air, has the appearance of milk. This drug was imported into China from Arabia as far back as the tenth century, and is still imported to an enormous extent at Shanghai to this day, under the name of *Ju-siang*, meaning perfume of milk, being always in allusion to the meaning of the Hebrew name *Lebonah*. Olibanum is derived from several species of *Boswellia*, indigenous to the hot, arid regions of Eastern Africa, the southern coast of Arabia, and some parts of India. The trees vary greatly in height, averaging about twenty feet; their form is very graceful, and when springing from a massive rock on the brink of a precipice their appearance is very picturesque. The harvest of this drug in Southern Arabia is thus described by Carter: "During the months of May and December longitudinal incisions are made in the bark; the cuticle and adjacent parts then become shining and distended. When the gum first begins to run it is white as milk, and according to its degree of fluidity runs down to the ground or concretes on the tree near to the incision. It is then collected by the families owning the land." According to Captain Miles the gum is not collected by the inhabitants of the country, but by the Somalis, who come over in large numbers from the opposite coast and pay a tribute to the Arabs for it, gathering it themselves. He considers the Arabian Luban inferior to the African. As found in commerce, olibanum varies greatly in quality and appearance. It occurs in the form of rounded fragments of a pale yellow and sometimes reddish color, also in pale yellow or nearly colorless distinctly pear-shaped tears, sometimes stalactiform and slightly agglutinated. It is always of a mealy surface covered with a fine white dust, and even where this is wiped off the tears appear translucent and milky. The fracture is splintery; the odor faintly balsamic; the taste bitter. These four ingredients would doubtless burn readily if cast on the fire of the altar, and probably burn with a flame, but to develop a smoke the ingredients should burn slowly, or smoulder. If burned in a censer, an incense of this composition would very likely go out by melting into a solid lump. In modern incense the difficulty is overcome by adding pulverized charcoal and nitrate of potash, but Moses does not specify any other ingredient. In the description of the composition of the holy incense given in the Talmud, we find the words "borith Carshina," which are usually translated "soap of Carshina," but soap would form a very bad ingredient for incense. Soap was unknown to the Jews, and the word "borith" is more likely to refer to a natural alkaline production of Judæa, somewhat similar to the Egyptian "natron" or "nitrum," or to the nitrate deposits of Chili. Such an addition to the ingredients would supply the oxygen necessary for combustion. From Ex. xxx. 22–28 we find that the holy anointing oil for the service of the tabernacle was composed of myrrh, sweet cinnamon, sweet calamus, cassia and olive oil. The word "myrrh" is derived from a Hebrew word, signifying in French *amer*, and in English bitter. It is also said to be derived from the Arabic word *mur*. The ancient Egyptian word Bola or Bal, and the Sanskrit Vola, are yet preserved in the Persian and Indian names Bol, Bola and Heera-Bol, well-known names of myrrh. Myrrh is a gum-resinous exudation from the stem of the *Balsamodendron myrrha*, collected in Arabia Felix and Abyssinia, a spiny shrub of which there are at least three distinct species. Good commercial myrrh is in irregularly-shaped masses of a reddish-brown color and slightly translucent. It has a dull, irregular fracture and an aromatic and characteristic odor. The Bissa-Bol, which is an inferior quality and much adulterated, was formerly called East Indian myrrh and is of African origin, but the plant furnishing it is unknown, although it is said by the natives to much resemble the tree yielding the Heera-Bol or true myrrh. The variety from which the ancients principally drew their supplies was probably that of southern Arabia; this has the same odor as ordinary myrrh, and is not distinguished from it in English commerce by any special denomination. The "sweet cinnamon," called "kinnamon" in the Old Testament, is Ceylon cinnamon. The "sweet calamus" (Keneh bosom), the "sweet cane" (Keneh hotteb, Jer. vi. 20), and "calamus" (Keneh, Song of Sol. iv. 14 and Ezek. xxvii. 19) is, according to some authorities, the *Andropogon calamus aromaticus* of Royle, which is synonymous with the *Andropogon Schœnanthus* of Linnæus, and known in India as Rossa-grass and in London as "Ginger-grass." This grass grows wild in Central India, in the Northwest Provinces, and is abundant everywhere in the Deccan. It has recently been found on the Hurnai Railway route in Beloochistan. At the present day this grass is largely used for the distillation of its oil, which is employed in the adulteration of attar of rose. It is, however, very probable that the "sweet calamus" was the *Andropogon laniger*. This plant has a wide distribution, extending from North Africa, through Arabia and North India to Thibet. It is the *Herba schœnanthus* and *Juncus odoratus* of Latin writers on materia medica. The Arabic name is Izkhir, which signifies stored-up forage. It has also been called *Fœnum camelorum*, from its use in dry desert tracts as a forage for camels. When cattle eat much of this grass the milk becomes scented. Lemery, commenting on Pomet ("Hist. des Drogues"), says "that this is a kind of fragrant rush or grass growing plentifully in Arabia Felix, at the foot of Mount Libanus. The stalk is about a foot high, divided into several hard stems, of the size, figure and color of barley straw, being much smaller toward the top. The leaves are about half a foot long, narrow, rough, pointed, of a pale green color. The flowers growing on the top are arranged in double order; they are small, hairy, and of a carnation color. * * * All the plant, and particularly the flower, is of a strong smell and bitter taste." The other odoriferous ingredient in the holy anointing oil, *Kiddah* (Exodus xxx. 24), is translated cassia. In Psalm xlv. 8, it is called *Ketzioh*, and here, undoubtedly, Cassia lignea is meant. This is the bark of the *Cinnamomum cassia*, a forest tree of China. Another variety called Malabar cassia is exported from Bombay; this is thicker and coarser than that from China. These barks resemble cinnamon in many of their qualities; the smell and taste are nearly the same, but less sweet and more pungent, but the substance is thicker and the appearance coarser and darker than cinnamon. All these barks contain a very aromatic volatile oil and a resin. In the holy anointing oil the proportions of these aromatics, as indicated by Moses (Ex. xxx. 22–38), are 500 shekels of myrrh, 250 of sweet cinnamon, 250 of sweet calamus, and 500 of cassia; to these were to be added one hin of olive oil. Although we here have the formula of this compound, the mode of making it is not described, and it is difficult to conceive how one hin of oil, which is about nine and three-quarter pints, could hold in solution so much solid matter, the total weight of which, 1,500 shekels, is equal to about forty-seven pounds. Such an mixture would only produce a very thick paste, and the oil was evidently intended to be liquid, as it was not only ordered to be used for anointing the altars and utensils of the Tabernacle, but was commanded to be used for consecrating the High Priest, by pouring it on to his head in such abundance as to run down his beard and impregnate the skirts of his garments (Psalms cxxxiii. 2). Probably the odoriferous properties were in some way separated from the ligneous matter before mixing with the olive oil. Several other aromatic substances used in the early ages have been the theme of modern investigation and dispute. The substances were sometimes made up in the form of ointments, which were lavishly used by the rich not only in their toilet, but also as a mark of distinction bestowed on guests. Aromatics were likewise burned during their entertainments, and perfumes in a dry form were used to impart a sweet odor to their garments (perfumes which were probably necessary, as they did not eat with forks, and soap was yet undiscovered). Odoriferous substances were used for preserving the bodies of the dead; myrrh and aloes wood were in this mixture, which was very likely an ungent. The spikenard ointment is said to have been of many ingredients; the word *nard* is derived from the Tamul word *nar*, which is used in India to designate many odoriferous substances, such as *nartum pillu*, Indian vervain; *narum panei*, jasmine; *narta manum*, wild orange, etc. The "Nardinum" which is so very fashionable in Rome, both as an oil and as a pomade, was made from the blossoms of the Indian and Arabian nardgrass. This would seem to refer to the *Andropogon laniger* above mentioned, and not to *Nardostachys jatamansi*, as generally believed. The flowers of this latter are white and odorless, the rank perfume being only developed in the root. As is the case generally in hot climates, oil was used by the Jews for anointing the body after the bath, and giving to the skin and hair a smooth and comely appearance before an entertainment (Ruth iii. 3, Prov. xxvii. 9, 16, Cant. i. 3, iv. 10). Strabo says the inhabitants of Mesopotamia used oil of sesame, also castor oil. At Egyptian entertainments it was usual for a slave to anoint the head of each guest as he took his places castor oil being sometimes used; Egyptain painting, represent this custom. The Greek and Roman usage will be found mentioned frequently by Homer, Horace and Pliny. Athenæus speaks of the extravagance of Antiochus Epiphanes in the matter of ointment for guests. Creech, in his annotations on Lucretius, says: "Moreover they arrived at length to an excess of curiosity in regard to their ointments that was indeed wonderful; for Athenæus reports that 'they grew so nice as to require several sorts of ointments for one single unction, viz., Egyptian for the feet and thighs, Phœnician for the cheeks and breasts, Sisymbrian for the arms, Amartine for the eyebrows and hair, and Serpylline for the neck and knees.'" But above al the rest, we may observe that the ancients made use of one sort of oil or ointment of great value and singular excellency; it was called *Oleum Suisinum* and was made of lilies, but chiefly of that sort of lily of which it is believed allusion is made in Canticles v. 13, where the Church says of Christ, "His lips are like lilies." Pliny describes the lily to be of a ruddy color. Elsewhere, Pliny says, "*Oleum Susinum* was made of oil of Ben" (or Behen), a colorless, tasteless and inodorous oil expressed from the seeds of *Moringa pterosperma*, now naturalized in the West Indies—an oil which never becomes rancid and does not corrode steel, for which reason it is used in modern days by watchmakers as a lubricant—"roses, honey, saffron, cinnamon and myrrh." The amount of perfume used in the palmy days of Rome was enormous; the wealthy patricians were most prodigal in this respect. The perfumers were called *Unguentarii*, as they principally compounded ungents, and must have done an immense business. In Rome, they congregated in a quarter called the "*Vicus Thuraricus*." The most celebrated perfumer in the time of Martial was a certain individual named Cosmus, whom Martial frequently mentions. At Capua there was such a number of perfumers that the principal street of the city, named Seplasia, was almost entirely occupied by them. For the most part, these tradesmen were Greeks, and, as at Athens, their shops (taberna) were the rendezvous of the rich idlers of those days. The perfumed oils and ointments were made in great variety. The basis of the oils was generally the oil of Ben above mentioned, and that of the unguents was a bleached and partly purified tallow. They were used not only for the hair, but to anoint all parts of the body, especially after the bath, which was quite a complicated process. It was also customary at banquets to honor the guests by pouring costly perfumed oils over their feet. Some of these were simple oils, such as *Rhodium*, made from roses; *Melinum*, made from quinces; *Metopium*, from bitter almonds; *Narcissimum*, from the narcissus. Perhaps the most fashionable oil after the *Oleum Susinum* above-mentioned was that called *Crocinum*, made from saffron (*Crocus*), which communicated both a fine color and odor to the person; Heliogabalus never bathed without it. Butter is noticed by Pliny as used by the negro and lower classes of Arabs for anointing their bodies. The natives of India prefer strong perfumes for this purpose, and use oil of santal and oil of patchouli. Savages also grease their bodies, but probably with the idea of being enabled to escape more easily from the grip of an enemy. In the words of a classical writer on the manners and customs of the Romans, "the bath was a most important event in every-day life. * * * Bodily health and cleanliness, although its original object, had long ceased being the only one; for the baths, dedicated with prodigal magnificence and supplied with all the comforts and conveniences that a voluptuary could desire, had become places of amusement, whither people repaired for pastime and enjoyment." Comparing the ruins of ancient baths with each other, and with the accounts of Vitrovius and Pliny, we find the essential parts of a Roman bath to be: 1. The *Spoliatorium*, a place where the clothes were left and consigned to *caprarii*, which were probably pegs, so called from their likeness to horns. 2. The *Frigidarium* or cold bath-room. 3. The *Tepidarium* or tepid bath-room. 4. The *Caldarium* or hot bath room, which was probably connected with the *Unctorium* or anointing room. The *Sudatorium* or sweating room was connected with the *Caldarium*. Those who desired to use the baths through all degrees of temperature sought first to give their bodies the preparation which was considered necessary, by some sort of light gymnastics, ball-play and the like. The baths were always provided with rooms suitable for this purpose. Persons would then probably enter first the Tepidarium, in order not to be exposed suddenly to the heat of the Caldarium, where they were anointed with oil, and it is probable that this was the place generally assigned to that operation, although we read of special *Unctoria*. The anointing with oil took place both before and after the bath; and even after they had already stepped into the bath they sometimes left it again to be anointed a second time, after which they again betook themselves to the bath. The bathers took the oil with them to the bath (or rather the slave carried it) in phials of alabaster, gold and glass, as well as the *strigiles* or scrapers, and the *lintea*, linen cloths, to dry themselves. In the early days people were content with a simple, pure oil, but at a later period costly salves, as above described, were the fashion. No doubt people anointed themselves at other times besides the bath, in order to reek of perfume the whole day through. Even the clothes were anointed with aromatic oils. The luxury and magnificence of the Romans were manifested in the construction of their public baths more than in any other building; they were embellished with *chefs-a'œuvre* of sculpture and painting, and the floors were paved with slabs of marble and inlaid with mosaics. It is estimated that 870 baths were open every day to the public, and rich people possessed private baths of their own, which were even more sumptuous and extravagant in their method of conduction. The Romans were not acquainted with the use of regular soap, but they employed an alkali, with which the greasy dirt was dissolved out of their clothes. This alkali, called *nitrum*, is referred to by Pliny; but the cheapest solvent was urine, which was mostly used. The clothes were put in this, mixed with water, and then stamped upon with the feet. This process was performed by old people, while boys lifted the clothes out of the tubs. The white garments, after being washed, were subjected to the vapor of sulphur—being stretched on a frame, and the sulphur burned beneath. Poor people in Rome cleansed their bodies with meal of lupins, called *lomentum*, which, with common meal, is still used in some places for that purpose. Soap, as we understand the old English word *sope* (from the Greek *sapon* and the Latin *sapo*), was first introduced by the Gauls, who found out a way of making it from goats' tallow and the ashes of beechwood. This was, no doubt, rather caustic, but it was uncontaminated with coloring matters and the deleterious perfumes put into common soaps of the present day. The soap was made into balls, called "Pilæ Mattiaca," named after the town where it was manufactured—"*Mattiacum*," modernized Marpurg. The French appellation of soap, "savon," seems to be due to a seaport town called Savona, near Genoa, where, at a later period, most of the soap for the European market was manufactured. The Romans, not content with swamping themselves with perfumes at their baths, their toilets, and their banquets, loved to be surrounded by a perpetual atmosphere of scent, and used, as we use a handkerchief, to dry the perspiration from the forehead, a fine linen cloth, called a *sudarium*, saturated with perfume.—*Knowledge*.

BORAX.

ITS NATURE AND SOURCES OF PRODUCTION.

The important minerals containing boracic acid which are actual commercial sources of this useful compound are borax or tinkal, $Na_2O.2B_2O_3+10H_2O$, which forms monoclynic crystals of prismatic habit, and sassolite, H_3BO_3, which is commonly in solution, and is obtained on evaporation. Calcium borate or ulexite is also a less important source, because the commercial product is the sodium borate, and the ulexite requires extra treatment. *Occurrence.*—Borax is produced in the United States only in Nevada and California. Its occurrence is chiefly in the region of the Great Basin in Western Nevada and Southern California; but a small pond was also formerly utilized on the shores of Clear Lake, some 80 miles north of San Francisco. The principal sources are now in Esmeralda County, Nev., and San Bernardina and Inyo Counties, Cal. Both these regions are characterized by alkaline deserts, or marshes that are the dried bottoms of former lakes. The best known and most important "salines," as the alkaline flats are called, are Teel's Marsh, Columbus Marsh, Fish Lake Valley, and Rhodes Marsh, in Esmeralda County, Nev., all being in confined valleys whose drainage evaporates instead of running off. The surface is sometimes coated with a boracic efflorescence which works up from the main storage deposits below. These marshes cover many thousand acres, but have relatively limited rich portions which admit of profitable working. Considerable common salt, sodium sulphate, gypsum, and other alkaline compounds are associated. * * * The small pond near Cedar Lake obtained its supply from the waters issuing from a neighboring hot spring, as has been shown by Mr. G. F. Becker. The spring water was found to contain about 0.5 per cent. of borax. The more southern deposits seem to obtain their supplies from the drainage of the neighboring heights. The chief foreign sources of borax are on the west coast of South America, in Chili, on the east coast in La Plata, in India, and in Tuscany. In the district last named the borax is obtained from hot springs in a region of expiring volcanic activity, and the waters are evaporated by steam from neighboring vents. *Preparation.*—The sand, clay, etc., which contains the borax is dug up, allowed to dry, and then taken to tanks, in which it is boiled in water and lixiviated. The heat is usually imparted to the solution by means of steam coils, and the fuel is such as can be obtained in the neighborhood. The water is obtained from artesian wells. After having been thoroughly leached the solution is settled and piped off into crystallizing vats, in which it cools and deposits the borax. These vats are commonly made of galvanized iron. If the crystals are dirty and impure, re-solution and re-crystallization may be necessary. Care is also taken to get all the borax of the original residues and not to let the solutions escape after crystallization until all the borax is out of them. The climate is excessively hot, and in some regions difficulty is experienced in the summer months in gaining a low enough temperature to cause the crystals to form. In some marshes the borax occurs as finely-formed crystals embedded in the clay and soil, but in general it is in a too finely divided condition to be so apparent.

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ELECTRIC MOTORS.—It has been decided to work the Liverpool Elevated Railway by electricity, using motor cars instead of separate locomotives. The line is six miles long, and the generatiug station is being erected near the middle of the railway. There are several opening bridges, and the structure is composed entirely of iron and steel, spanning for the most par the existing dock railway, which will thus be left fre for the goods traffic of the docks.

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Subscriptions $1 per year. Now is the time to subscribe.

BRIGHT STORIES.

A SOUTH SEA WITCH.

(*Continued from page* 54.)

Certainly much that had occurred was marvellous and totally inexplicable, but I did not see anything to be frightened at. For my part, I merely felt very much excited, and wild with curiosity to see more of these wonders and find out what they all meant. I begged my friend to speak to the woman in the dialect of the island, and to ask whether he might stay there until morning.

He approached with hesitating steps, and, giving her the customary salutation, told her who we were, and asked whether we might have shelter from the storm and a place to sleep in. A change at once came over the expression of her face. The great eyes opened with a look of unutterable tenderness, which made her something more than beautiful, and slowly raising herself she stood up before us at her full height. We were tall men, but she towered a head and shoulders above the tallest of us. Gazing at the lieutenant with a wonderful sweetness in her face and manner—with all the subtle fascination of the island woman, in fact—she bowed her head three times and slowly waved her shapely arms in the air.

Again we heard the chorus of voices singing some clear words that had no meaning to us, and again the place seemed filled with the strains of harps. At the same moment the light faded entirely away, but to our right there appeared, as it were, a narrow path of light along the floor, and in that direction we saw the mats on the wall drawn aside from a sort of doorway or opening into another chamber. The lieutenant led the way along the path and through the doorway.

I turned to see what had become of our hostess. She was standing there in an atmosphere of opalescent light, coming only from her diadem and necklace, and she shot a glance of fury at me that assuredly meant death if eyes had power to kill.

On leaving the temple we found ourselves in a long, low room, skilfully built of canes and plaited palm leaves, and lit in some mysterious way with a soft, white light. On the rush-covered floor were sleeping places already laid with sweet scented grass mats and cushions of beaten bark. A screen, reaching nearly to the roof, divided each bed from the other, and gave each of us a separate apartment. The lieutenant went to the end of the room, while I took the middle place, the sailor sleeping at the doorway as a sort of sentinel or guard against any surprise. The lieutenant fell into a deep sleep as soon as he lay down, and I knew from his heavy breathing that the sailor had done the same. As for me, I never felt less inclined to sleep.

A few minutes after we had composed ourselves the light faded slowly away, but I lit my two ship's candles, which I knew would burn all night, and, with Tim close to my side, prepared myself for anything that might happen. I had an overpowering presentment of some ordeal to be undergone, and I also had a feeling that some unknown peril threatened me, unless I should remain awake and keep up my courage.

The first thing I knew was that my candles were going out, and out they went, leaving me in total darkness. Tim gave a howl and trembled violently. I struck a match and lit the candles again, but they went out again immediately, and when I tried to strike another match it would not light. I tried another and another. I tried the whole boxful, but all in vain. They would not light any more than if they had been soaked in water. I lay down and resigned myself to watching in the dark.

The next thing I became aware of was a sensation of sudden cold, as if an icy draft were passing over me. Tim evidently felt it, too, for he howled dismally and kept snapping with his teeth, as if he were confronted with some enemy. Shortly afterwards the sailor gave a loud cry and then called out: "Who goes there?"

"What's the matter, Collins?" I said.

"Beg pardon, sir; I suppose it was a dream. I thought some 'un came in and put a foot on me. We've got into rum sort o' quarters, I'm thinkin'."

"Oh, go to sleep, man, and don't be a fool!"

"Aye, aye, sir." and the worthy fellow turned over and was soon snoring again.

An hour must have passed without any further event, except that at intervals the cold became so intense it seemed to freeze my very bones, when I distinctly heard a rustling sound and saw a faint light towards the doorway. At the same instant the sailor uttered a shriek of terror, and springing to his feet, threw down the screen dividing his sleeping place from mine, and threw himself by my side.

"My God, sir, did you see that?"

"See what?" I said. "It was only another dream Go to sleep."

"No, sir, it warn't no dream," he replied. "It was a ghost, that's what it was; or else a corpse. It came and stood over me, like, without touching the floor. O Lord, O Lord, I wish I was safe aboard again."

The man was evidently beside himself with fear, and all my persuasions were not enough to induce him to go back to sleep by the door. I at last prevailed on him to lie down by my side, and he presently fell into a troubled sleep.

What happened next cannot easily be described. Again I felt that chilly blast sweep over me, as if paralyzing me with cold, and then I, in my turn, saw what the sailor had called a ghost or a corpse, "standing over me, like, without touching the floor."

With a desperate effort I choked down my fear and summoned all the courage I possessed to make out what it really was. It was undoubtedly a human form, and as the strange light that seemed to come from it grew stronger I saw it was a female form—the form of the witch—and gazing at me with that look of deadly hate she had fixed on me when I tried to touch her. But how was she changed! The substance of her body and her massy hair and dark brown skin were gone, and instead she was a ghastly shade of bluish white, with the light that surrounded her seeming to pass through her, too. I knew it must be all imagination, or else some cleverly arranged optical illusion, and I sat up and reached out toward the apparition.

Ha! What was that?

My hands came in contact with something cold and wet, and again I had a shock as from a powerful battery, and found myself flung on my back with a force that nearly knocked me senseless.

Before I could recover my presence of mind, the thing, whatever it was, had lowered itself upon me, and I felt it pressing me as if to crush me to death. Tim gave a gurgling bark when I called on him for help, and then a long, low moan, but never moved. The sailor sprang up with an agonized yell and rushed from the room. I shouted to the lieutenant, but got no response. I felt it was a struggle for life. Mustering all my bodily strength, and all my power of will as well, I grasped the object that was weighing on me, and lifting it from me by sheer force I staggered to my feet and flung it from me.

There seemed to be a ringing in my ears, as of harsh discordant voices and a jangling of bells and instruments out of tune, and a horrible sensation of sickness and of failing at the heart came over me. But I had felt above all that I had triumphed and was safe.

I tried to strike a light and my matches did their duty. I lit my candles and then I saw a grievous sight. Poor Tim, my faithful dog, was dead and stiff, with his glazed eyes staring from his head.

I rushed to the lieutenant and shook him by the shoulder, but he could hardly be awakened until the daylight came.

We made our escape from the hateful place in silence, and in a state of bewilderment bordering on insanity, and were not surprised to hear, when we reached the ship, that the boatswain's mate had gone out of his mind. It was many months before the poor fellow recovered, and for all my boasting I did not soon regain my nerve after my rash contest with the powers of darkness.—*Cincinnati Commercial.*

SLEEP AND SLEEPLESSNESS.

SOME CONSIDERATIONS OF THE CAUSE OF SLEEP.

The most ancient account that has come down to us of a systematic attempt to vanquish sleeplessness is probably the one which is to be found in the book of Esther. We there learn that Ahasuerus, on an occasion when he could not sleep, "commanded to bring the books of records of the Chronicles, and they were read before him." The book of records of the Chronicles stood in lieu of the newspaper, and a newspaper is still employed by many as an inducer of sleep. But newspapers and the light by which to read them are not always at the disposal of wakeful persons. Chief among the conditions which accompany natural sleep is the comparative freedom of the brain from blood. The difference is indeed sufficient to cause a sensible falling off in the temperature of the head of a sleeping person. A second condition is the comparative freedom of the brain from oxygen. Alexander von Humboldt seems to have been the first to suggest this, and his theory is now very generally accepted; although several writers—and notably Dr. Friedrich Scholz of Bremen—have recently attacked it with considerable energy. But this condition exists only at the commencement of sleep. It is apparently the principal clause of mental fatigue; and as the proportion of oxygen increases, the fatigue and consequent need of sleep decrease. The activity and usefulness of every organ of the body are carried on at the expense of a consumption of animal fuel; and this process exhausts much of the oxygen of the system. We take in oxygen in the air we breathe, but we do not take in quite enough for our waking needs. The deficiency is supplied from the oxygen that we store up within us while we sleep. During the day we gradually exhaust this reserve; and as the supply of oxygen fails, so the fires of our vitality diminish. Long deprivation of sleep is; therefore, dangerous to the well being of the body; for in default of proper fuel, the bodily fires consume the body itself. Nor is this all. Oxygen is necessary for strength; and it is to the lack of it in the tired body that the phenomenon which is so often to be observed in sleepy persons may be attributed. The muscles of the neck, for the nonce improperly fortified, grow weak, and the sufferer involuntarily nods. At a later stage all the muscles are similarly affected. The third condition, which tends to produce natural sleep may be called periodicity. . Man is essentially a creature of habit, and the advent of bedtime is, even in the case of people who suffer from wakefulness, the most favorable opportunity for seeking rest. If, then, the time be propitious, the position appropriate, and the degree of fatigue sufficient, the ordinary person goes to sleep But one or more of the conditions may be lacking, or there may be mental conditions which seem to forbid sleep, even when time, position and fatigue are alfavorable. The commonest of these diverse conditions is more or less intense mental preoccupation. This tends to drive blood to the head, and the evil may be remedied either by intellectual exertion in a less absorbing direction or by mechanical means. Boerhave recommends his sleepless patients to lie where they could not avoid listening to the regular falling of drops of water into a resonant vessel. Jean Paul Richter suggested the picturing in the mind of an endless garland of flowers which stretched away into measureless space. Other people advise the sufferer to count to himself, or to conjure up visions from the pattern of the paper on the wall or from the shadows in the room. Among the mechanical means for withdrawing the excess of blood from the brain, the use of a hot bath may be recommended; but the prescription of Professor Preyer of Jopa is perhaps the best. He makes his patient stand with one arm outstretched until the limb aches violently. This conducts an excess of blood to the arm and seldom fails to relieve the brain. The worse thing that a sleepless man can do is to make use of chloral or morphia. The more he takes it the more he needs it; and scores of instances are on record of men who, having taken one or the other for a few nights in succession, have never again been able to sleep without the assistance of the drug. Sleep is so good a thing for the body that it may always be enjoyed with advantage whenever it can be obtained; but the amount of sleep that is absolutely necessary for the recuperation of the faculties varies greatly with different people. Eight hours' sleep, eight hours' work and eight hours' recreation is perhaps the best division of the day and night for most persons; but stout people generally require more sleep than lean ones, and old people less than young ones. Alexander von Humboldt slept for only four hours out of twenty-four; so did Frederick the Great. Napoleon on the other hand, slept much, and would, at least at one time in his life, fall asleep whenever he had an opportunity. It is recorded of him that when he was before Toulon he could fall asleep during the heaviest firing, but that he usually awoke as soon as it ceased. A similar phenomenon occasionally occurs with most of us. The stopping of a clock or the cessation of the jolting and whirling of an express train will wake many a man who sleeps soundly enough while the noise continues. The miller is aroused when his mill-wheel comes to a standstill; and the sleeping coachman wakes with a start when his weary horse pulls slowly up and begins to nibble the grass at the sides of the road.—*St. James Gazette.*

DOMESTIC DIETETICS.

SPECIALLY PREPARED, FROM PRACTICAL TESTS, FOR THE LADY READERS OF THE "AMERICAN ANALYST."

SEASONABLE FOOD.

February.

MEATS.—Beef, mutton, ham, kidneys, liver, venison, sausage, pork,

GAME AND POULTRY.—Grouse, hare, pigeon, chicken, duck, turkey, geese.

FISH.—Bass, cod, crabs, eels, carp, catfish, flounder, halibut, herring, lobster, mackerel, mussels, oysters, perch, pike, rock-fish, salmon, smelt, whitefish.

VEGETABLES.—Artichokes, beets, beans, cabbage, carrots, celery, garlic, lettuce, onions, parsley, parsnips, potatoes, shallots, spinach, squash, tomatoes, turnips.

FRUIT.—Apples, bananas, grapes, oranges.

PRACTICAL RECIPES.

OX-TAIL SOUP.—Put two ox-tails in enough water to cover them and cook until not quite done; take them from the fire and cut the meat into small pieces. Melt two tablespoonfuls of butter, and in it fry a turnip, two carrots, two small onions, a stalk of celery, and two thin slices of bacon cut up very fine. Add a little beef broth to the water in which the ox-tails were boiled, also the fried vegetables, and two tablespoonfuls of browned flour for thickening. Season with a tablespoonful of Worcestershire sauce, boil up and strain; add the bits of ox-tail and half a glass of sherry and serve.

POTATO BEEF.—Boil some potatoes in their skins until thoroughly done; peel them and mash them smoothly, adding as you do some milk and one or more beaten eggs; butter a pudding-dish and cover it with a layer of potatoes; this cover with a layer of thin slices of cold rare beef, then add another layer of potato, and so on until the dish is full. Bake until a fine brown.

HAM TOAST.—Brown some thin slices of bread and cut them into square bits. Grate some lean ham and mix with it some pepper and the yolk of an egg; fry it in a little butter, pour it over the toast and brown with a hot shovel or in a very hot oven.

OYSTER SAUCE.—Drain off about half the liquor from a pint of large oysters. Put them with the remaining liquor into a covered saucepan with some mace and nutmeg, and simmer over the fire for about ten minutes, then drain the oysters. Make some drawn butter with butter, flour and the rest of the oyster liquor; add the oysters to it and serve with boiled fish or poultry. Boiled celery added is an improvement.

CHARLOTTE RUSSE.—Whip stiff a pint of cream. Beat stiff the whites of two eggs and add them to the cream with a small cupful of powdered sugar. Put one-third of a box of gelatine to soak in a little cold water until it melts; add this to the cream with a small wineglass of sherry or some vanilla. Line a glass dish with stale sponge cake or any plain dry cake; pour the cream over it and set it away for two or three hours to stiffen.

NEW YEAR'S COOKIES.—One cupful of sugar, one-half cupful butter, two eggs well beaten, a scant half-teaspoonful of soda dissolved in a tablespoonful of sweet milk; flour enough to roll out very thin. Sprinkle with caraway seed; roll out very thin, cut into cakes, and bake in a quick oven.

SLICED COCOANUT CANDY.—Pare a cocoanut and slice thin. Cover buttered tins with the slices. Boil on top of the stove two pounds of sugar and one pint of water. Test frequently, and when a few drops become brittle and hard in coldwater remove from fire; add flavoring and pour over the sliced cocoanut.

HONEY BEVERAGES.

BY P. L. SIMMONDS, F. L. S.

The earliest manufactured kind of intoxicating liquid was probably mead. From honey a fermented beverage is made, which is largely used throughout the Soudan. Mead is said to have been the principal beverage of the Britons before the use of malt liquors among them; and long after the introduction of the latter beverages mead was a favorite drink. Under the name of metheglin it was frequently alluded to by old writers. Mead formed the ancient, and for centuries the favorite, beverage of the northern nations. It is still called by the Germans honeywine. Mead is frequently mentioned by Ossian. Dryden has a couplet:

> T'allay the strength and hardness of the wine,
> Let with old Bacchus new Metheglin join.

Queen Elizabeth was so fond of mead as to have had it made for her every year. Mead formed the nectar of the Scandinavian nations, and was celebrated by their bards; it was the drink which they expected to quaff in heaven out of the skulls of their enemies, and was, as might be expected, liberally patronized on earth. The Scandinavian mead is flavored with primrose blossoms. In Spain mead is known as aloja. The Africans use several honey drinks, hives being common. In Madagascar they make a honey wine, a composition of three parts of water to one of honey, which they boil together and skim after it is reduced to three-fourths. They afterwards put it to ferment in large pots of black earth. This wine has a pleasant tartish taste, but is too luscious. In Abyssinia, according to Bruce, they use five or six quarts of water to one quart of honey. These they mix together in a jar, throw in a handful of parched barley meal and some chips of a bitter bark, which in two or three days takes off the cloying taste of the honey and makes the beverage wholesome and palatable. Braggon, or Bragget, was a sort of metheglin. Hydromel is honey and water submitted to fermentation. Oxymel is a mixture of honey and vinegar. Here is a more modern recipe than Queen Elizabeth's for mead. Eight ounces each of sarsaparilla, licorice root, ginger and cassia bark; two ounces of cloves and three ounces of coriander, suitably cut and bruised, are boiled for fifteen minutes in eight gallons of water, allowed to cool and settle and then strained through flannel. To this is added in the fountain, one and a half gallons syrup, half a gallon honey, four ounces each of tincture of ginger and solution of citric acid, and afterwards sufficient water to make ten gallons, when it is charged with carbonic acid gas. The following recipe for metheglin was published in the *Journal of Horticulture:* "When the comb has been drained of the honey, put it in a large vessel, then pour in sufficient lukewarm water to swim it nicely. Let it stand two days, stir it occasionally, then strain it; skim the scum from the liquor carefully, filter the sediment through a flannel bag, then boil one hour. To three gallons add two pounds of raisins, one ounce of ground ginger and seven or eight laurel leaves, then cool. Add a little of brewers' barm, let it stand part of a day, then barrel it, leaving the barrel open for two or three days; then bung it up, and let it remain untouched for six months, then bottle it." I dare say some who try their hands at making this honey drink will be anxious to taste it before the expiration of the six months, but the longer it is kept the better it will be. If an egg will float on the liquor it will be about the right strength. Metheglin may, of course, be made from pure honey, but by soaking the combs in water we utilize the honey which would otherwise be lost. A little lump sugar put in each bottle will make it as fine as brandy. Honey wine is made of the juice of the best grapes, well ripened, and kept twenty days before pressing, to which five parts of the finest honey should be added, and all well stirred in a wooden vessel. Cover with a linen cloth, and allow to ferment for forty days, the scum being occasionally removed. It is then put in a tight cask, and so kept until the ensuing spring, when it is bottled. The Jews in Morocco are very fond of Mahaya, a weak, colorless spirit, flavored with aniseed, which they prepare from water in which honeycombs have been boiled. The distillation of this spirit is conducted in the rudest manner. Dr. Leared, in his work, "Morocco and the Moors," states having witnessed the process. The condenser consisted of an old gun barrel, while the water into which the lower end was plunged, in order to cause condensation, was allowed to become too hot for the hand to bear. Honey Currant Wine.—To three quarts of juice add three pounds of honey and water to make one gallon; let it ferment four or five weeks with open bung, and keep the barrel always full, in a warm place, then drain and put into another barrel in the cellar. It makes a delicious drink. Honey Noyeau.—Four ounces of bitter almonds, two ounces of sweet almonds, two pounds loaf sugar, three lemons, two quarts of gin, two large spoonfuls of clarified honey, and one pint of milk. Blanch and pound the almonds, and mix them with the sugar, which should be rolled. Boil the milk, and, when cold, add all the ingredients together and let them stand ten days, shaking them every day. Filter the mixture through blotting paper, bottle off for use, and seal the corks down. Cheap Harvest Drink.—To those engaged in harvesting and other occupations tending to create thirst, the following preparation may be recommended, which makes a very palatable and healthful drink in hot weather: Take twelve gallons of water, twenty pounds of honey and six eggs, using the whites only. Let these boil one hour, then add cinnamon, ginger, cloves, mace, and a little rosemary. When cold add one spoonful of yeast from the brewer; stir it well and in twenty-four hours it will be good.—*Br. and Col. Drug.*

ANCIENT AND NEW GUNPOWDER.

PROGRESS IN ITS MANUFACTURE.

The question, Who has invented gunpowder? is quickly raised but less quickly answered. It is much easier to say who has not invented gunpowder, and it is certain that neither the monks of the middle-ages—among them especially Berthold, "the Black"—nor Alburtus Magnus (1193–1280), nor other scholars of that time had any share in this invention. We are less in doubt about the first knowledge of the ingredients of gunpowder, as v. g. sulphur, which Odysseus seems to have used as a disinfectant. Nitre was known to the Chinese for several thousands of years, since they availed themselves in the preparation of fireworks of its property, when mixed with very inflammable substances, to induce a lively decrepitation. In a later period the "China Salt" seems to have served a similar purpose among the Arabs. The "Greek Fire," which it was said had been made use of by Constantine the Great, has been found by recent investigations to have been nothing more than a nitrous fuse-composition. The secret of the mixture having been preserved with the utmost care, it was possible for the Greeks, almost as late as the crusades, to use it as a defence against hostile populations. It is a remarkable circumstance that during all this long period the propulsive force of powder was not or very little noticed. The first form under which this took place was the rocket. Copper vessels, filled with fuse-powder and provided with an aperture, were observed to fly over a much greater distance when thrown while burning. The next progress was to insert arrows and bolts in a loaded tube, i. e., to propel other bodies by the energy present in the powder. As a consequence we see, towards the middle of the fourteenth century, the manufacture of powder spread rapidly over the European countries. The year 1340 shows powder-mills being erected in Augsburg—1344, in Spandau. Its use in war was limited at first to large mortars and the like, while its application to small fire-arms was of later origin. The wars at the beginning of the present century initiated a considerable progress in the construction of arms, especially through the introduction of percussion-caps in the place of unreliable flint-locks. It is surprising that the importance of breech-loading, which we see being attempted as far back as 1360, should have taken so long a time to be fully recognized. It was only on the battle-fields of Bohemia, in 1866, that it carried absolute acknowledgment. But at the same time the march of development had reached a point where the old dominion of black powder, after having ruled the world for more than five centuries, was suddenly overthrown. Two circumstances required imperatively the use of a powder material which, with equal quantities, would perform a much greater mechanical work. Armored vessels had been invented, and the struggle between the gun manufacturer and the armor manufacturer had commenced. If the former one did not want to succumb, he had to look out for new substances which would impart to the projectile a much greater penetrating force. But it was above all the effort, beginning in 1887, of introducing smaller sized projectiles, which acted the principal part in these investigations. A long shaped projectile, when traversing the air, meets with less resistance than a spherical projectile, the trajectory is straighter, the probability of hitting the aim is greater, especially when its distance is not known with exactitude. To this has been added the introduction of the magazine mechanism, by which a saving in the weight and size of the cartridge became desirable. We thus see the diameter of the projectile being gradually reduced from 35 mm. in the seventeenth century to about 15 mm., and in the last years even to half of this. But if a thin and consequently lighter projectile is required to be endowed with the same force as a heavier one, the product of weight into the square of velocity has to remain a constant quantity, i. e., the latter has to be increased if the former is decreased. Adding to all these considerations the desideratum of a smokeless powder, resulting from a greatly increased rapidity of firing, it is evident that the experiments undertaken some years ago for the purpose of providing black powder by strong compression, with increased efficiency in proportion to volume, and especially with a more uniform action, were nothing better than provisional makeshifts. The time had arrived for organic chemistry to displace, by its more complicated productions, the unorganic method in the manufacture of powder. The first experiments followed Schonbein's invention of exploding cotton about fifty years ago. The process of transforming cotton into an explosive substance, as well as the later methods of obtaining the same result with other substances, like glycerine and phenol, are based on a certain treatment with nitric acid, by which the so-called Nitrogroup (NO_2) is made to enter these substances, while another atomic group is displaced simultaneously with the formation of water. The eminent diversity of the products so formed—exploding cotton, nitro-glycerine, and picric acid—substances of a much higher explosive force than black powder, is due to the circumstance that each of their molecules contains the atoms destined to form the gaseous combinations exactly in the proportion required for this purpose, while black powder, in spite of the most delicate mixture, is nothing more than a mingling in which the various ingredients are placed side by side in the shape of separate pieces of rather large dimensions when compared with those of a molecule, while in the other case the transformation is accomplished within the molecule. Some other important circumstances increase the effect. The development of gas in the new explosive substance is more than three times as large as in the old powder. The time in which 1 kilogm. of exploding cotton explodes is only the five hundredth part of the time required for powder, and, as to the products of combustion, we have in one case mere gaseous bodies, which are invisible, except aqueous vapor, which rapidly disappears, while in the case of smoke originating from powder we have a large quantity of solid matter whose dispersion proceeds much slower, just as the smoke-cloud from a chimney. The tardiness in utilizing the excellent properties of the substances mentioned is explained by their small degree of constancy. Although the danger of an unexpected explosion was considerably obviated, v. g., by careful purification of the materials, it so happened that in a laboratory near Vienna 300,000 kilogm. exploding cotton exploded simultaneously—an event which caused all experiments to be suspended for a long time. Subsequently the French Government resolved the introduction of an army powder (*Melenit*) prepared from new explosive substances, especially picric acid. But repeated explosions of Melenit kept in store demonstrated the little reliability obtained until then. The present perfection of powder prepared from exploding cotton is due to the discovery that exploding cotton is soluble with camphor, and in this condition is reducible to a horny mass. From this mass not only different granulations for the different applications of the powder may be obtained; its "brisance" itself may be regulated at pleasure by changes in the proportion of its ingredients. A still greater progress was realized by Alfred Nobel's discovery that exploding cotton is also soluble in nitro-glycerine. These and further successful experiments led finally to the preparation of a powder adaptable to every peculiar purpose. There are so many degrees in the energy of combustion that henceforth any kind of a gun may have a powder prepared for it—which, on the one hand, is not more "brisant" than the resistance of its barrel will permit; while, on the other hand, the projectile is expelled with a velocity determinable with the utmost exactitude. With this the victory of the new powder over the old powder is irrevocably decided. The question of an ideal gunpowder is solved, but woe to the nation that, in the competition for all bellicose improvement, should lag behind, for *Sivis pacem, para bellum?* still rules.

CALIFORNIA CORK.

ITS CULTIVATION URGED UPON THE STATE.

Every year adds something to the diversity of the products of Californian soil and climate. No fruit, flower, shrub or tree is known to the temperate zone that does not here find a genial abode, while semi-tropical and even tropical products vie with the hardier vegetation of the colder zones in the measure of their lusty growth and generous fruition. And now comes the cork tree to the front to claim its share of public attention as an important source of wealth, for future generations at least, in this land so favored by nature. That it will flourish and produce its velvety bark here in prolific perfection the evidences of many a tall and vigorous cork oak now growing in various localities in the State prove beyond doubt or cavil. That few among the earlier settlers in California may live to see the production of cork as an article of manufacture and commerce attain any considerable degree of importance, may be true, but that it has become the bounden duty of present generations to plant the seed, that posterity may reap the harvest, is a proposition that no reasonable man will care to dispute. So far individual enterprise has established the fact that the cork oak has here found a congenial home. It is said that General Bidwell has recently sold in the San Francisco market a considerable quantity of cork bark of the finest velvety quality, the product of trees upon his property at Chico. In Amador County is a cork tree raised from an acorn planted some thirty-two years ago by Mr. Surface, of that town, the bark of which, on cutting it away, seemed to be of the very best quality of "velvet cork," and would, no doubt, command a high price in the market. It would appear, therefore, that the soil and climate of California are better adapted to the growth of this tree than those of Spain and Portugal even. The fact, therefore, having been demonstrated that the tree will grow in California, and will produce as good if not superior bark to that elsewhere found, the question presents itself: What is the duty of the State, through its legislative and executive authority, in the matter of fostering the planting and cultivation of the cork tree?—*San Francisco Herald.*

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IMPURE AIR.

AN UNWHOLESOME ACCOMPANIMENT OF CIVILIZATION.

The factor least considered in the cause of sickness is impure air, or house air as it might be termed, though happily civilized man is making the discovery that in proportion as he shuts himself up within four walls he suffers from a variety of physical and mental ills and premature death. Dr. Remindino, author of a pamphlet referred to, shows conclusively that this is true. He says: We find that barbarous and nomadic people were all in the enjoyment of the best of health; that finally a portion became civilized, and then began to house themselves in; that with this change in their habits and customs also came ill-health, physical and mental ailments, and general degeneracy. We notice, further, that those who still follow the old nomadic habits still retain their health and enjoy exemption from disease, but we well observe, whenever any of these adopt the customs of the civilized man, and go on and house themselves as the others have done, that they also sicken, and that their children become like the children of the close house-dweller—a prey to all kinds of house ills.

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EXTRACTING COBALT.—Cobalt is now obtained from low-grade ores by a new process much cheaper than present methods. The ore is roasted with common salt and manganese, and then treated with sulphureted hydrogen to remove the copper, while the cobalt is precipitated with sulphide of sodium.

A NEW BIRD.—A little boy seeing an elephant in the menagerie, asked his mama if that was the animal that laid billard balls.

INCONSISTENT.—There are men who would go on a mission to China, who are not willing to sit down and rock the baby for a half-hour.

DOGS OF WAR.—The Austrian Minister of War has issued orders for dogs to be trained for service as messengers and sentinels, and also to assist in discovering the wounded in the field of battle.

A NEW ROLE.—"Be me sowl," exclaimed Mrs. Finnegan, "Iverything is blamed on the poor Oirish nowadays. Wud yes belave it, Pat? They do be sayin' that an Oirishman gave the people in the sout' the yaller faver, a felley be the name av Mike Robe."

SOUR MILK.—The souring of milk by thunder storms has excited the curiosity of many chemists. Tolomei has made the most extended researches and concludes that the ozone formed by lightning favors the growth of the germs causing the fermentation of milk.

NEW SHIP.—The Venezuela, belonging to the Red D Line, is the first vessel built under the provisions of the postal subsidy act of the last Congress. She has been tested under the supervision of a naval board and made 15¼ knots average on a four hour trip. The board reports that she complies with the government requirements.

TO CUT BRASS.—A recent method suggested of cutting brass articles by means of chemicals consists of drawing a line across the metal at the desired point with a quill pen dipped in a strong alcoholic solution of corrosive sublimate. After drying, the same line is passed over with the pen dipped in nitric acid, when the metal may be broken like glass cut with a diamond.

PUBLIC SCHOOLS.—In his report to the Secretary of the Interior, Commissioner Harris, of the Bureau of Education, says that there were enrolled during the fiscal year 1889-1890 in public schools of elementary and secondary grade 12,686,973 pupils, against 9,867,505 in 1880. The enrollment formed 20 27 per cent. of the population of 1890. The average daily attendance of pupils on each day in 1890 was 8,144,938. The total amount expended during the last fiscal year for public school purposes was $140,277,484 against $78,094,687 in 1888. The expenditure per capita of population in 1880 was $1.56 and in 1890 it was $2 24. The total value of grounds, buildings and apparatus of educational institutions in 1891 was $72,894,729.

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CONSISTENCY.—Two Irishmen had been lying in wait behind a hedge fence for the landlord, who they thought would pass that way. They were armed with shotguns loaded to the muzzle, and for having been dispossessed by the landlord, were determined to shoot him as he passed. They waited a long time and finally becoming tired, left their lair, one of them remarking. "Bedad, Mike, I hope nothing has happened to him."

VALUABLE JEWEL.—How many people are there (asks the London correspondent of the Glasgow *Herald*) who were aware until to day that there is in existence a substance other than a jewel of the purest water, which is worth no less than sixty times its weight in pure gold? Yet in the cabinet of chemical elements which the late Prince Lucien Bonaparte has bequeathed to the English nation there is a substance called germanium which is reported to be of this fabulous value.

TO CLARIFY WATER.—To every gallon of the liquid add five grains sodium bicarbonate, stir well, and add from three to five minims of solution of persulphate of iron (Monsel's solution), and again stir. The reaction produces carbonate of iron, sodium sulphate and water with the escape of carbonic acid. The heavy carbonate in falling carries down the suspended impurities. A similar reaction takes place when a ferrous chloride is used, the product being ferrous carbonate.—*Exchange.*

A SOCIETY HUMORIST.—A laughing jackass has been presented to Miss Farren as a souvenir of her professional visit to the Antipodes. The laughing jackass is a large sized bird something like a parrot. This strange creature, which screeches rather than laughs, enjoys the protection of the Legislature in some at least of the colonies, where it is made penal to shoot one. The reason is that the laughing jackass is the born foe of snakes, of which so many deadly varieties abound in the bush.

BUSINESS NOTES.

IMPERIAL GRANUM.

One of the oldest and most firmly-established preparations for infant and invalid food is Imperial Granum. Years of trial have given their testimony of its value. The character of the manufacture has been steadily maintained at the highest point of excellence, and new friends have been constantly gained, while old friends have adhered stronger than ever to their first love. When it is considered that a large establishment is required to manufacture this one article, and that it is sold in every part of the world, it can be readily understood that it has a firm hold on the confidence of the public, as well as of the medical profession, and it richly deserves it, for it has been a real boon to the sick and to the babes.

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THE BLOOD IN HIGH ALTITUDES.—Muentz has studied the changes in the composition of the blood of animals taken from a low to a high altitude. He reasons from his observations that the low atmospheric pressure produces the same effect as an increase of easily assimilated food, which is a greater per cent. of hæmoglobin in the blood. This may be all very well in theory, but it will be some time before a rare atmosphere will be substituted for rare beef steak or other nutritious food to enrich the blood of patients.

LONDON SOOT.—The amount of carbonaceous and other particles deposited upon glass houses is a good indication of what the London atmosphere contains, and in many places it is only possible to procure a due admission of light to the plants by frequently washing the glass roofs. At one establishment recently two tanks constructed to collect the rain from a house completed a few years since, were cleared out, and no less than ten barrow loads of sooty matter were removed, all of which must have been conveyed into the tanks from the glass.

THE DIGESTIBILITY OF BEEF AND FISH VARIOUSLY PREPARED.—Dr. Popoff finds that beef and fish are more rapidly peptonized in a raw than in a cooked condition. He concludes, therefore, that these viands are rendered harder to digest by cooking. Moreover, the longer they are cooked the more indigestible they become. This is especially true of beef. After having been subjected to the same process of preparation (except smoking) beef, as a rule, was the more easily digested. Smoking renders fish more digestible and beef less digestible. Fish rich in fat is easier digested than lean fish.—*Deut. Med. Zeit.*

VALUE OF PATENTS.—An English paper gives some interesting statistics as to the pecuniary return of a few inventions. The stylographic pen for a while brought in £40,000 a year; the India rubber tips to pencils, £20,000; metal plates for protecting the soles and heels of boots brought in £250,000 in all; the roller-skate, £200,000. A clergyman realized £400 a week by the invention of a toy; another toy, the return ball, brought in an income of £10,000; the "Dancing Jim Crow," £15,000 a year. The inventor of a copper cap for children's boots was able to leave his heirs £400,000, while Singer, of sewing machine fame, left at his death nearly £3 000,000.

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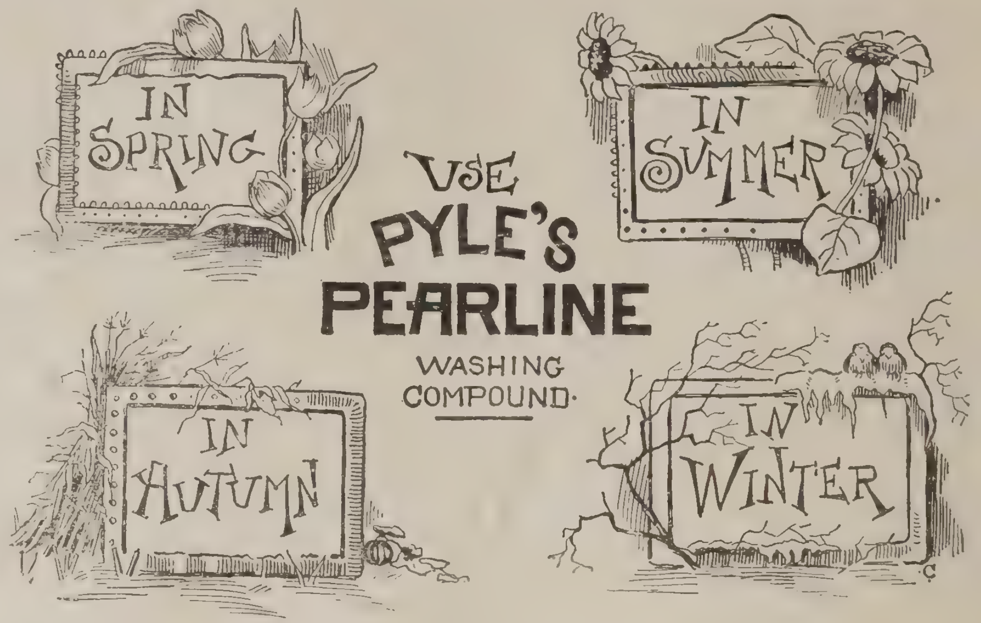

Beware Peddlers and some unscrupulous grocers will tell you, "this is as good as" or "the same as Pearline." IT'S FALSE—Pearline is never peddled, and if your grocer sends you something in place of Pearline, do the honest thing—*send it back.* 241 JAMES PYLE, New York.

BLACK INK.—No chemical black ink has yet been made which will write black immediately on exposure. The common black ink is made of nutgalls, and is by all odds the best ink ever made. Manuscripts made in this black ink 500 and 600 years ago are just as legible to day as when first written. The chemical inks of the present age are of too recent invention to determine whether they will last, but it is quite probable that most of them will be as eligible at the end of fifty or seventy-five years as they are to-day. There is, however, a fortune in store for the man who will invent a chemical black ink that will write black at the first and remain so.—*St. Louis Globe-Democrat.*

STEEL UNDER THE MICROSCOPE.—At a meeting of the Amsterdam Royal Academy of Sciences M. Behrens stated that, under high powers of the microscope, the network in hardened steel may be made visible on polished slices without etching or annealing, the dark sinuous lines answering to the bright ones shown by Sorby and Wedding on etched slices. It is proved that hardened steel contains hard granules bound up in a matrix of soft iron. Some varieties of gray iron from small castings may be hardened like steel, most of the graphite disappearing. After annealing the metal at a red heat, the slices were dotted with blackish dust, and the graphite seemed to have reappeared.

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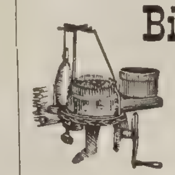

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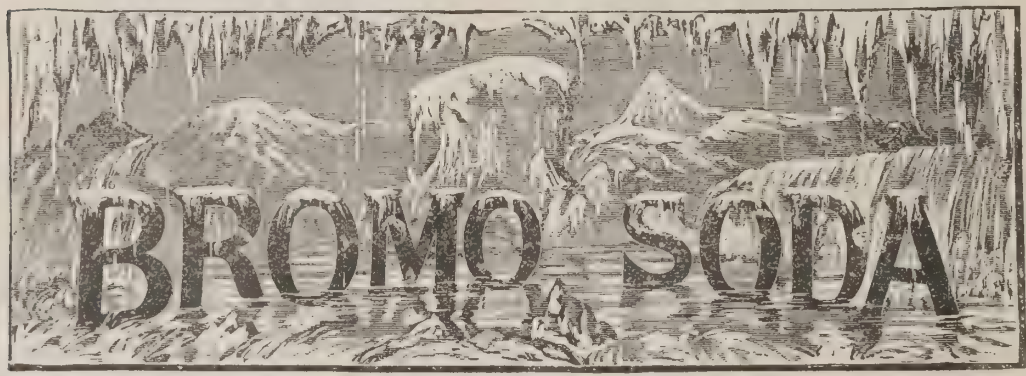

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CONTENTS.

American Metals 78
Bright Stories
My Ambitious Astral Body 76
Convention of Press Clubs 78
Domestic Dietetics 77
Editorials 73
Pure Food in Congress; Aerial Navigation.
Electricity 74
Hellebore 74
Insect Nuisances 77
Kitchen Hints 79
Magnetic Deflection 77
New War Agent 75

PURE FOOD IN CONGRESS.

This is an age of falsification, socially, spiritually and commercially. In the latter field of enterprise the practice of deceit upon buyers by sellers is not confined to food and drug products, though in these the greatest frauds are committed. It cannot be expected that consumers should be so familiar with the processes of production as to enable them to detect frauds. This is true of nearly everything one buys for use as food or clothing. It often happens that clothing, which the buyer is told is made of pure wool, contains large quantities of shoddy or cotton, and often both things, which the buyer in the very nature of things, could not know. It is not enough to say that it is against the interests of the dealer to thus misrepresent things. The fact remains that it is done in more than a limited way. Similarly articles in common use on the farm and in the household are represented to be of a material and quality superior to those of which they really consist. The adulteration of wines is notorious. Though our wine product amounts to several millions of gallons yearly, a German wine merchant, who visited this country a short time ago to study our vineyards, found it almost impossible, as was shown recently by our contemporary, the *Bulletin*, to buy American wine as such, even in California; and a large wine grower in this State, who sells his whole product in New York city, failed to find a single bottle of his wine in the city. But he found plenty of French wine instead. Such misrepresentations as these are fully as flagrant as are adulterations of food products. A pure food bill has been introduced into the Senate by Senator Paddock, as foreshadowed at the beginning of the session by the AMERICAN ANALYST, which has been favorably reported by the Committee on Agriculture. It is, with some slight modifications, the original bill offered by the same Senator in the last Congress as a substitute to the Conger lard bill, and which was discussed at the time in these columns. The bill in its present shape provides for the organization of a food section of the chemical division of the Department of Agriculture under the charge of a corps of chemists, whose duties shall be to analyze food products offered for sale, and, if violations of the law are detected, to collect evidence and proof of such fact for the use of the various United States District Attorneys. The Act is limited to food and drugs, the former being defined as "all article, used for food or drink by man, whether simple, mixed or compound," and the latter as "all medicines for internal or external use." The introduction from one State into another, or from any foreign country into the United States, of any article of food or drugs which is adulterated or misbranded is prohibited under penalty of fine and imprisonment. Drugs are considered as adulterated within the meaning of this Act when they are not up to the standards of strength, quality, and purity laid down in standard works as belonging to drugs bearing names recognized therein, or if they fall below the professed standard of strength and purity under which they are sold. Articles of food are adulterated when they have mixed with them any substance or substances which will lower their quality or value, or when inferior substances have been substituted in whole or in part for them, or if valuable ingredients have been abstracted, or if they are in imitation of or sold under the name of other articles, or if they have been mixed or colored so as to conceal damage—all made with the intent of deceiving the purchaser. At the same time, food products consisting either in whole or in part of deceased or filthy animal or vegetable substances which are injurious to health are covered by the Act, without regard to any intent on the part of the manufacturer or seller to deceive the buyer. Mixtures or compounds bearing two or more ingredients, if plainly stamped under their own distinctive names and sold as such, are not considered as adulterations by this Act. The above are the essential provisions of Senator Paddock's bill. Everyone recognizes the need of such legislation, and no concerted opposition to it is possible. The strong competition between manufacturers and dealers to increase their sales has brought down prices, and in order to keep up profits resort has been made to adulterations of all kinds. To such an extent has this been carried, that in many cases articles claimed to be pure consist chiefly of adulterants. Spices are now made and sold at the buyer's price by means of the addition of various adulterants; wines claimed to be pure, often consist of the juice of dried raisins, currants, etc., with very little grape juice. Cotton oil lard is made and sold as genuine lard. These things may not be injurious of themselves, but the buyer is deceived by not getting what he asks for, and trade in genuine and pure products is at the same time injured.

◆

AERIAL NAVIGATION.

The competitive spirit that governs business activities in the present eager generation, is signally illustrated in the methods adopted by the publishers of our periodicals to attract special attention to their productions. The daily newspaper—especially in its Sunday issue—is rapidly covering the field hitherto occupied by the magazine, and so forcing the latter to stretch out into new paths of endeavor. The latest manifestation of this tendency of journalistic expansion is the scheme of the *Cosmopolitan* magazine, of this city, to effect a solution of the problem of aerial navigation. We are informed by a circular that, under the direction of that enterprising periodical, a series of experiments is about to be made which we are told it is hoped will be brought to a satisfactory conclusion. Unquestionably, the greatest mechanical problem unsolved is that of aerial navigation. When one considers the far-reaching effect which it would have upon the civilization o the age, and the benefits which would accrue to mankind, the wonder is that the matter has not been, ere this, seriously studied under government supervision. The *Cosmopolitan* does not enter lightly upon the undertaking. A portion of the plans to be put into execution were submitted to the French Government by a member of the *Cosmopolitan* staff as long ago as 1867. There are undoubtedly great difficulties in the way, but the attempt will be steadfastly pursued, under the direction of the ablest scientists whose aid can be obtained. No patents will be applied for as the result of inventions made. If success crowns the work, the results will belong to the public. The *Cosmopolitan* has arranged with Thomas A. Edison, for his services in consultation. With Prof. Louis M. Haupt to supervise the mechanical and engineering features. With Prof. King, the greatest living aeronaut, to advise in regard to practical aeronautics, and with *Electricity*, to assist that vast army of inventors who, otherwise competent, are insufficiently equipped electrically, by answering all questions of electrical nature pertaining to aeronautics."

READ PAGE 82.

ELECTRICITY.

HOW LITTLE WE KNOW OF ITS NATURE.

It was a favorite saying of Zöllner's that the great difference which he found between educated and uneducated people was that the latter accept all the phenomena of nature as matters of course, while the former find themselves encompassed with riddles, seeming contradictions and wonders. Just as, until Newton, no one wondered that the apple fell to the ground, so to-day the great majority of people discourse about electricity, magnetism, electric currents, electric machines, etc., in so familiar and matter-of-fact a manner as to intimidate inquiries, without realizing how very meagre is our knowledge of the essence or substance of electricity and its relation to other natural forces or manifestations of force. It is true that in physics we talk about positive and negative electricity, about an electric fluid, etc., but this "fluid" is only a word which serves our purpose in the absence of more exact knowledge. Is there such a thing as electricity? And, if so, what is it? What is this puzzling, invisible imponderable so-called fluid which courses through the telegraph wires? What force is in the cable that connects the machine with the dazzling electric light? There is nothing on the wire to indicate to the naked eye whether the electric current flows through it or not. There is no change of color and no appreciable change in its taste or temperature; nevertheless, a wonderful something from without operates in it. If I hold my watch near it, under certain conditions, it will be stopped and permanently damaged. If I file the wire thinner in any spot, it becomes heated to redness. If I cut the wire through, a shower of sparks spurt out, accompanied with flashes of light dangerous to life, and in all respects resembling lightning. The mystic force disappears as rapidly as it comes, traversing thousands of miles in a second. These are facts with which every school boy is acquainted, but the more familiar the phenomena, the more painful for the thinking man is the uncertainty as to its essence and its relations. An electric stream flowing through a wire is interrupted if the wire be cut; and in 1831 Faraday made the remarkable discovery that at every opening and closing, an electric current of short duration was set up or "inducted" in every metallic body in the neighborhood. This appeared at first glance to indicate that the electric force was capable of operating at a distance, without any channel of communication. Faraday, however, was convinced that this was no adequate explanation, but that the transit of the fluid was accomplished by the mediation of some unknown conductor. But if electric induction is dependent on some medium in space, the question arises, should not experiment afford evidences of it, by enabling us to determine the speed of transit, and further, what is the transit medium? Federsen was the first to discover that the transit of electricity from point to point was not instantaneous, and recalling what was said above as to all metallic bodies in the neighborhood of the cut wire becoming subjects of induction, is it not reasonable to infer that the operation is conducted by a species of waves of motion. An analogous instance to the transit of electricity through space is afforded by the following very familiar phenomena: The reader will almost surely have remarked that on opening the door of a room suddenly, a hinged window on the opposite wall sprang open. To a man unaware of the existence of air, the phenomena must necessarily suggest the idea of force acting at a distance, but with our knowledge of air and its properties the explanation is simple; the opening of the door sets in motion waves of air, which, reaching the window act mechanically upon it. Electric induction is now explained by a similar hypothesis. The principal worker in this field has been Professor Hertz, now of the University of Bonn, whose experiments and deductions are of epoch-making significance, and whose views may be concisely stated as follows: We may now deem it extremely probable that there is no such thing as electricity or magnetism in the sense in which it has been hitherto conceived, viz., as a certain imponderable fluid, attracting and repelling from a distance, but rather that light, heat, magnetism are electrical phenomena; or otherwise that light, heat, electricity magnetism are kindred phenomena, all depending on the motion of the ether, which we think of as invisible and of incalculable tenuity, penetrating all bodies and filling space. It is clearly evident that electric induction is not immediate, nor due to a force springing through space from point to point, but that it requires measurable time in transit, and that its extension is similar to that of light and heat, viz., by waves of motion. We have no space here to enter on the details of Hertz's interesting investigations as to the relations of electricity to heat, light, optics, etc. Suffice it to say that his discoveries have created considerable excitement in scientific circles, opening up a vast intellectual perspective. In all cases, wherever light. heat, and chemical action are operative he has rendered it evident electricity is also active. Let us imagine that at this moment, the sun, hitherto darkened, shines forth in its brilliancy; thousands and tens of thousands of waves of ether burst forth permeating space in all directions; a small portion of these waves reach the earth, each single wave is made up of portions of waves of all sorts, some with especially short, some with especially long waves, some powerful, some weak, some polarized, some unpolarized, comparable to the varying waves of sound which fall on the ear, when a band strikes up. The very short waves with wave lengths the thousandth part of a millimeter, exert themselves in chemical action, as on photographic plates, and in the functions of organic life; those of greater wave length are apprehended by the eye as light, appearing, according to their length as violet, indigo, blue, green, yellow, orange, red. They strike on the retina and generate the perception of light and color. Even waves of this length generate a measure of warmth in their activity, and all these, along with waves whose lengths can be measured by meters and kilometers are of electric nature, while the waves of utmost length manifest themselves probably in the Northern Lights which flash from pole to pole, similar to what is to be observed on the planet Venus. If the question is now again asked: What is electricity, we may reply advantageously in the words of Jokai: A thing of which we know a little more than nothing, and a little less than something. A little more than nothing, for we know that it is of the nature of light and heat, extending itself like them in waves of motion. A little less than something, for of the essence of electricity itself, whether static or dynamic, we are still absolutely in the dark. There has been no want of ether theories, but the fundamental tendency of the age is to reduce all phenomena and forces to the fewest possible primaries; and it is not improbable that this will be facilitated by the wave theory of the so-called ether. The problem of gravitation, too, which was so long regarded as a force acting from a distance, is now equally attributed to the agency of a medium. In his efforts to demonstrate the oneness of all natural forces, the physicist is not likely to be led astray, even although the cognition of force presents one of those world-problems, the solution of which must forever escape us; aye, although as the final result of the most exact investigation, it should forever be denied to him, even to assert decisively: "It is only a force, and the ether is its medium of transmission."
—CARL GRANG.

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OXYGEN GAS.—The new process for oxygen gas, by F. Fanta, is based upon that of the French chemist, Tessier du Motay, in which manganate of soda is treated in a current of steam; oxygen is evolved, and the manganate is reduced to sesquioxide of manganese, which is re-oxidized by being heated in a current of air. It is essential that the stuff should not melt, but remain porous.

HELLEBORE.

SOME CONJECTURES CONCERNING AN ANCIENT DRUG.

Drugs prepared from hellebore were so famous among the ancients as a remedy for madness, and indeed, for many other ailments—Pliny gives a list of them quite worth the notice of advertisers of patent medicines—that the plant has acquired for itself a literary as well as a botanical interest. We know that different species have been used in different countries for their medicinal properties, which are, perhaps, essentially the same in them all, though varying in strength. The hellebore of the modern English *Pharmacopœia* is the root of *Helleborus niger*, the common Christmas rose. In Germany, *H. viridis*, the green hellebore, is said to be preferred, and from its frequent occurrence in England in the neighborhood of old ruins we may infer that it was formerly used here. At Constantinople a popular drug called zoptane is made from *H. orientalis*, which is common on the mountains of eastern Turkey. In Gerard's time, our native *H. fœtidus*, the rankest of all the genus, was employed medicinally, though known to require great caution in using, and it is still retained in veterinary practice for outward application. The physicians of ancient Greece, who for many centuries before and after the Christian era were famous throughout the civilized world for their skill, were very fanciful about the locality from which the herbs used by them were collected. The kind of herb might be the same, but when gathered on a particular mountain or in a particular forest it was thought to have additional virtue. Drugs of the same name were classified as first, second, third, or fourth quality, according to the source from which they came; and were priced and trusted accordingly. Hellebore was of two kinds, distinguished as black and white. The best black came from Mount Helicon, and the best white from Mount Œta. The town most famous for its preparation was called Anticyra, but this name was ambiguous. There is a well-known passage in "The Art of Poetry," written by the Roman poet Horace, in which he says that to gain a reputation as a poet a man must be so mad that three Anticyras can not cure him, and must never have his hair cut. Multiplying by three was a common superlative figure of speech in Latin, as in other languages, and perhaps Horace meant no more than this; but, on the other hand, he may have known that there were in Greece three towns named Anticyra, and possibly they were all places where the drug hellebore was prepared. One Anticyra was on a narrow strip of the land of the Locrians, between Ætolia and the sea. Strabo, an ancient writer on geography, and Livy, a Roman historian, both mention it. It was taken by the Romans in the second Punic war, and given over to their allies, the Ætolians. We know nothing of it as connected with hellebore, though Pliny tells us that Ætolian hellebore, which was of bad quality, was used to adulterate the better Parnassian kind. There was another Anticyra in the southeastern corner of Thessaly, three or four miles from the sea, near the base of Mount Œta and the famous path of Thermopylæ, but we do not hear of this town as producing hellebore, except on the slight authority of the lexicographer, Stephanus of Byzantium, who lived in the sixth century of our era. The third Anticyra, the only one which we know to have been famous in classical times for the manufacture of this drug, was situated on the southern coast of Phocis, not far from the base of Mount Parnassus, and within a few miles of Mount Helicon. The position of it is well known, and it is now named Aspra Spitia. It was not an island, as Pliny and others have wrongly said, and never can have been so in historic times, but it stood on a peninsula, and had a good harbor. In Horace's day it was a place of resort for insane or epileptic patients, who went there to take a course of hellebore under resident physicians. Hence, to say "you should go to Anticyra," was a polite way of telling a man he was a fool. Among others who had gone through this medical course there, Pliny mentions the philosopher Carneades, who went there for intellectual training before publicly declaiming against the dogmas of the Stoics, apparently supposing that a medicine which could make madmen sane would make sane men still wiser. Also, Drusus, a famous popular leader of the Romans, was cured there of epilepsy. The same writer adds that this drug which retained its virtue for thirty years, and once was thought so formidable, had now become so "promiscuous" in its use that students often took a dose of it to sharpen their intellect when they were puzzled by difficult passages in their reading—a valuable hint, by the way, for candidates before a competitive examination! I recollect a virtuous freshman at Cambridge who, with a similar object, laid in a large stock of "reading biscuits" which he saw advertised in a window. The next question is, what were the kinds of hellebore called black and white, and found respectively on Mount Helicon and Mount Œta? We ought to be able to answer this, because Edmond Boissier has told us, in the preface to *Flora orientalis*, that, thanks to the labors of the botanists, Orphanides and Heldreich, the flora of Greece is now better known than that of any other country within the scope of his work. The hellebore which is found to prevail on Mount Helicon, Mount Parnassus, and the neighboring country, is one to which E. Boissier gives the name of *H. cyclophyllus*. It is intermediate between *H. viridis* and *H. orientalis*, having been confused with the latter both by Sibthorp and by Heldreich. Perhaps it is not in cultivation in England, but it is described as being taller, and having larger flowers, and broader segments to the leaves, than the green hellebore, which in other characters it resembles. As for the white hellebore, it is evident from the vague descriptions of Theophrastus and Pliny that neither of them knew a living hellebore by sight, but Pliny says that he had been told that the leaf of the black hellebore was of the shape of a plane leaf, but divided into several segments, and that the white hellebore had leaves resembling those of the beet, and deeply channeled at the back. He attributes to it a bulbous root like that of an onion, with fibrous tunics. Ancient and modern botanists have generally identified this with *Veratrum album*, which is figured in Gerard's "Herbal" as the white hellebore; but perhaps the best evidence is that of Heldreich, who expored Mount Œta in 1879, and found *V. album* growing there in abundance, confirming his previous opinion that this was the white hellebore of Theophrastus. The different effects of the two kinds of hellebore taken medicinally, as recorded by ancient authorities, corresponds with modern experience; the black is a powerful cathartic and the white a strong emetic. This a summary of all that is known, or likely ever to be known, of the famous hellebores of the ancients.—*Gardeners' Chronicle.*

A NEW WAR AGENT.

THE UTILIZATION OF POWERFUL ELECTRICAL WAVES.

When Nikola Tesla invited some of his associate members of the American Institute of Electrical Engineers to witness some experiments recently the invitations were accepted most eagerly. Some intimation of a discovery by Mr. Tesla of a new phase of electricity had crept out. Tesla's repute as an electrician justified the highest expectations, and led electricians to wonder whether the strange things which he had discovered or developed might not be the beginning of another stage of progress in the application of electricity to commercial pursuits. The experiments have been noted with great interest by the electrical journals and by scientific men. Mr. Tesla used a dynamo which produced electric waves of a peculiar character, immense rapidity, and enormous voltage. The current from the dynamo was led to two metal plates, so placed that one was on either side of the lecture room walls, and they were directly opposite each other. When the current was turned on it was discovered that the electric waves generated by the dynamo were carried or propagated through the air of the room from one plate to the other, and without any communicating medium visible to the eye, such as a wire. Extraordinary results were produced which fascinated the spectators. They were witnessing something new, startling, perhaps almost appalling in its suggestive possibilities. When Mr. Tesla held in his hand the carbon filaments of an electric lamp so that a line drawn from one of the plates to the other would pass through the lamp, very brilliant incandescence was produced. No metallic substance whatever connected the lamp with the plates. When he withdrew the lamp, so that it was no longer within range between the two plates, the light was extinguished instantly. Of course, that demonstration revealed to the electricians that it was possible to convey an electric current from one plate to another and with such intensity as to produce a most brilliant electric light in an incandescent lamp through the medium of the air. Another experiment demonstrated that if a man stood within range of this electric current his body became instantly so heated that the warmth of it was perceptible. It was suggested that if a current of sufficient intensity should pass between the plates it would pass through the body of a man, and might wither or scorch him, but an experiment in that direction has not been made the subject of discussion. One of the members of the Institute, Mr. J. J. Carty, was impressed by the experiments, for they suggested to him certain ideas which had occurred to him in the course of his examination and study of the uses of electricity as applied to commercial development. As the executive head of the mechanical and scientific department of the Metropolitan Telephone Company, he is recognized as an expert in practical matters, as well as an authority in some of the most advanced questions of electrical research. In the early fall, when trouble seemed to be brewing with Chili and later on when war was deemed to be imminent, Mr. Carty gave such time as he could spare from his duties to the consideration, in a purely technical way, of the probability of the application of electricity to the uses of warfare, and especially to the realm of possibilities which Tesla's experiments seem to open. Mr. Carty, in discussing these matters, said that the suggestions which he made might be of no immediate practical value, yet they were suggestions which scientific electricians might not despise, while if they were set forth in language which laymen can understand, they might prove of popular interest in view of the fascination which the study of electricity seems to have for the masses. In beginning Mr. Carty said that when the war of the rebellion opened our navy was composed of wooden ships, and that there was a bigger gap between these ships and the little cheese box which made successful defence against the Merrimac in Hampton Roads than there is between the present methods of warfare and the revolution which may be made possible by electrical science in the manner of conducting it. The Monitor was the outcome of necessity. Probably we could have relied on the present methods of warfare had there been a contest with Chili, yet in a prolonged struggle with a nation as powerful as we are we should probably have cast about for some new methods of attack and defence, and, of course, would have turned to electricity to solve the problem. "Now," Mr. Carty said, warming to the subject, "what can electricity do for warfare? Everybody knows that it is doing something now, but its use is purely conventional. It furnishes motive power for training guns and working light machinery, for exploding mines and torpedoes, for signalling, and for the search light." "Is not the search light an aid for attack?" "Hardly that, but in the search light we may find the germs of a future engine of war perhaps as revolutionary as was the Monitor. Already it may be utilized to interfere with the vision, and even in peace we see how powerful it can do that, for we remember how bitterly the pilots complained of the light at Hell Gate, so bitterly, in fact, that it was taken down. Now, every schoolboy knows that Archimedes was said to have destroyed the fleet of the Romans before Syracuse by using burning mirrors The energy thrown out by a search light cannot be made sufficient to do that, yet it suggests certain possibilities, taken in connection with the remarkable experiments of Mr. Tesla. In this experiment which has already been described to you, Tesla followed out the latest conception as to the nature of electricity, which is that electricity, in many of its phases, is a form of vibration in the ether quite analogous to the vibrations of light and heat. This theory has been demonstrated lately by a wonderful series of experiments conducted by Hertz in Germany, and the experiments of Mr. Tesla in this city at Columbia College followed up the Hertz experiments, but on a different line. "Of course, the exact reason for the transmission of the electric current without any metallic conductor across a room from one plate to another is very obscure. It is very difficult, indeed, to explain it, and it can only be done by analogy, at least so that laymen can understand it. It is described as a sort of molecular bombardment, and that very term suggests the particular applicability of this phase of electricity when considered in reference to its possible or probable use in warfare. Now, as a matter of fact, while the experiment of Mr. Tesla was conducted by the use of plates at a short distance apart, say fifteen or twenty feet, there is really no inherent reason why this same result could not be produced at a distance of 5,000 feet. The only question is one of machinery. Can we make a machine having a sufficiently high voltage and sending an electric wave with sufficient rapidity? If we can, we can send a destructive current of electricity through the air for a distance of 5,000 feet or more. I might illustrate this so that it would appear more plain. Supposing, for instance, that if two metal plates were made and one of them put up on the side of Fort Hamilton and the other on the side of Fort Wadsworth, and a dynamo be attached to them of sufficient power, there is no reason why an incandescent lamp fastened to a passing vessel would not be illuminated when it came within range, so to speak, exactly as the lamp which was held in Mr. Tesla's hand was. Now," said Mr. Carty, "it is not a very great step from this phenomenon to expect that the electric impulse would not only light the lamp but would affect the ship itself. It might derange the compass, it might do damage to machinery on board the ship, it might possibly heat the armor of a war ship so as seriously to disable it, and that is a most important suggestion in connection with this matter. I can see no inherent reason why this should not be so. The Tesla experiments have demonstrated a fact of electricity, and to my thinking it is only a question of our ability to construct a dynamo of sufficient power to generate the current." "What kind of a machine ought that to be?" "Well, such a dynamo should be able to produce millions of electric waves every second, and should have a voltage approximating lightning itself." "Is such a machine possible?" Mr. Carty hesitated a moment before replying to this question, and then said: "In the present stage of the science, of course, such a machine can only be dreamed of as a possibility, yet in electrical development dreams become realities with amazing rapidity. Why, we have in this city a very recent illustration of the truth of this. During the administration of Mayor Hewitt 1,200 volts were regarded as being uncontrollable in underground wires, and yet to-day from 20,000 to 30,000 are not uncommon in laboratory experiments, and in experimental installation. Now, it seems to me that there would be no greater progress displayed in the building of a dynamo capable of sending a current of electricity from the shore or from a float through the air to a war ship than the progress which has been gained in securing high voltage since the day when 1,200 volts was considered uncontrollable."

BRIGHT STORIES.

MY AMBITIOUS ASTRAL BODY.

HOW IT CAME NEAR GETTING THE MASTERY.

I.

"There's no doubt at all about it," said the rajah, relighting his cigar. "It's perfectly easy if you know how to do it. The skepticism of the West is nothing less than disgusting."

The rajah had come to Oxford to complete his education and embue himself with the culture of Europe; and he sat in my rooms in a frock coat of perfect cut (he always wore a frock coat), smoking one of my cigars and drinking a whiskey-and-soda. The rajah took to European culture with avidity, and I have very little doubt that he learned many new things with which it might or might not be expedient to acquaint his fellow-countrymen and subjects when he returned to India. But all the intellectual interests of Oxford were not strong enough to wean him from his love for the ancient lore of his own country, and he was always ready to expound the hidden wisdom of the East to any inquiring spirit. As soon as I found this out, I cultivated his acquaintance sedulously; for, in common with all intelligent men of the present day, I took a keen interest in that strange learning which seemed to give its possessors such extraordinary powers.

"Can you do it," I asked

"I should hope so," said the rajah, contemptuously. "If I couldn't do that, I'd turn Mohammedan."

"I wish you'd teach me."

The rajah took in a deep puff of smoke. "You're sure you could manage it?" he asked.

"I beg your pardon?"

"Well, of course, like anything else, an astral body must be treated with tact, or it gets out of hand."

"Does it!"

"Why, yes; you must be firm and yet kind. Don't let it take liberties, or you don't know where it will land you. I rather doubt if I ought to show you."

I implored him to do so. I was young, rash, self-confident, and I thought I could manage an astral body as easily as I did the college authorities.

"Don't blame me if you find it too much for you, that's all," said the rajah; "and, of course, you must promise not to tell any one."

"Oh, must I?"

"Yes, you must; because its quite irregular in me to show you like this. You ought, by rights, you know, to go to Thibet for seven years."

"That would be rather a bore."

"Beastly," said the rajah; "but, of course, they insist on it, because they get the fees."

He swore me to secrecy by all manner of oaths, and lastly on my word as a gentleman; and then he showed me. I practiced all that evening, and was tolerably proficient by the time the rajah knocked out his last pipe and went off to bed. I must not tell how it is done, as I promised not to; besides, if any one reads this narrative through he will never want to know.

At first it was very convenient. I always used to project it to chapel instead of going myself. It did capitally there, because it had only to behave itself and hold its tongue. At lectures, it was a failure; it was such an inattentive beggar that its notes were worth nothing. And it was no sort of use in the crew; I was told that I should be turned out if I went on shirking like that—there is no pluck or endurance in these Orientals. On the whole, however, I was very well satisfied with it, and came to rely upon it more and more for all the unpleasant duties of life.

"Well, how do you like it?" asked the rajah, one day.

"My dear fellow, it's splendid," I answered; "it's up in town, being measured for trousers now. You can't think how much trouble it saves."

The rajah smiled and shook his head.

"Be moderate," he said; "you mustn't use it too much or it'll presume."

"Will it? What will it do?"

"Why, if it's always being projected, likely as not it'll learn the trick of it, and take to projecting itself. Then you'll be left in the lurch."

"What shall I do then?"

"I don't see what you can do," said the rajah, scratching his head, "of course I should merely report it at headquarters; but you can't, because you've no business with it at all."

"Well, I shan't grudge it a holiday now and then," I said, magnanimously.

The rajah was right. It did begin to take French leave. Several times, when I wanted it, I found it had, without a word of apology, projected itself off somewhere, and was not available. I spoke very severely to it. It said nothing, but listened, with an unpleasant sort of smile. "We all have our duties," I remarked, "and yours is to be here"—and I pointed to my chest—"when you are wanted."

"I ought to have a little relaxation," it answered.

"I never heard of such a thing in connection with you. Isn't it enough for you to meditate in four dimensions when you're not at work? That would satisfy most people."

"It's all very well in Thibet," it grumbled; "but a fellow doesn't come to Oxford to do that."

"One would think you had nothing to do with me. You seem to forget that you are simply a projection of mine."

We had some high words and parted—I mean, united—in very bad temper with one another. It was in the middle of a most impertinent and positively threatening speech, when I terminated the interview by resuming it. It was very unreasonable and irritating, and I made up my mind to ask the rajah to speak to it the next morning. I had an engagement that evening, or I would have done it then. How I wish I had!

At half-past nine, I went to an "at home" at Professor Drayton's. As a rule, "at homes" are dull; but I had a reason for going to this one. The professor had a very pretty daughter, and I was vain enough to think that my presence was welcome to her. In fact, we were great friends, and I had not been at the house a quarter of an hour before I had forgotten all my worries with my unruly astral body, and was sitting by Bessie in the small drawing room, enjoying myself immensely. Suddenly—mysteriously—I felt something like a violent push; Bessie vanished; the drawing-room vanished; and I found myself in the street, standing in dripping rain, without a hat or coat. I stood still in bewilderment. What had happened? A moment later the proctor was upon me. I gave my name and college in a mechanical way, and he passed on, leaving me still standing in the rain. What had happened? Then it flashed across my mind. I understood its threats. It had projected me.

II.

I woke up next morning, determined to have it out with it. I found, as I expected, that it had waited till I was asleep; then it slunk in and united without my knowing it. I went and paid my fine, and then, not waiting to breakfast, I proceeded to project it. It would not move! I tried again and again. I had no more power over it than a child. I knew it was there; but I could not move it an inch. In wrath, I jumped up, seized my cap and started for the rajah's rooms. The rogue saw what I was up to. I give you my word I had not reached the door when it projected me most viciously, and I landed down in the Parks.

I was not to be beaten. I came back to college at a run and made straight for the rajah's rooms. It was on the lookout for me. As I ran by the passage leading to my rooms, which I had to pass, it rushed out on me, united, and projected me back again to Magdalen Bridge. This happened three times. Then I sat down, just where I dropped, and acknowledged to myself that I was in a pretty fix, I had a fearful week of it. Of course, wherever I was it could unite at once by just thinking of me; and directly it had united it used, I believe out of pure malice, to project me somewhere where I did not want to go. It was lucky for me that it was new to the business; its powers were as yet very undeveloped, and consequently it did not carry very far. If it could, I am sure it would have sent me to Kamtschatka; but, as it was, I never went further than the university boathouse—a pretty tidy step on a bad morning. Still it was improving; and I felt that I must act at once if I did not want to be a permanent wanderer on the face of the earth.

My only chance was to engross its attention in some way, so that it would forget me for a little while and leave me free to speak to the rajah. I pinned all my hopes on the rajah. Well, one morning, about a week after it first projected me, I went for a walk in Christchurch Meadow. We were united, and it had actually left me in peace ever since breakfast, I hoped its better feelings were beginning to get the mastery of it, and, in order to see, I tried to project it. No, it would not move. The creature was still recalcitrant.

Suddenly I saw Bessie Drayton just in front of me. In delight at seeing her I forgot about it, and quickening my pace, overtook her and lifted my hat. She smiled divinely, saying: "Why, Mr. Nares, I was just going to write——" At that moment, when I was listening to her sweet voice, it projected me. Could ill-nature go further? But luckily its mind was not really concentrated on what it was doing. I believe it was thinking of Bessie, and consequently it only carried about a hundred yards. I landed behind one of the big elms, where I lay *perdu* till it had gone by. It and Bessie passed me together, and it was grinning from ear to ear and looking as pleased as Punch. And poor Bessie, who thought she was talking to me, was being most charming to it.

I did not waste time in swearing. I ran like the wind back to the college, hoping that Bessie's society would prevent it coming after me till I had spoken to the rajah. I still retained one pull over it. In order to unite it had to come where I was; it could not resume me from a distance as I used to resume it; so if it united now, it would have to leave Bessie.

By a blessed chance the rajah was at home, and, in trembling haste, I poured my story into his ear. He burst out laughing.

"I was afraid of it!" he gasped, holding his sides; "how splendid!"

I restrained my annoyance, and, after a time, he became a little more grave.

"Do help me!" I urged; "it may unite at any moment and project me, the deuce knows where."

"Oh, it'll be all right with the young lady."

"Not for long. She's very particular, and won't let it walk far with her."

"Oh, then we must act. You don't feel it yet?"

"No; but do be quick!"

The rajah locked his outer door, took off his coat, lay down on the floor, and went into strong convulsions. I regretted putting him to so much trouble, but my need was urgent, and I knew that he was a good-natured man. Presently he cried (and I was just getting alarmed about him):

"Are you there, Nani-Tal?"

"Certainly," said an old white-haired gentleman, dressed in a sheet, who sat in the rajah's arm-chair.

'That's all right," said the rajah, getting up and putting on his coat. "You were very difficult."

"We're so busy just now," said Nani-Tal, apologetically. "I'm demonstrating three nights a week, and the preparations take all my time."

"Well, you can't have a boom for nothing," said the rajah, smiling.

I don't complain," said Nani-Tal; "I only mentioned it to excuse myself for keeping you waiting. I was in New York when you began materializing. It's a lively city."

"You must tell him all about it." said the rajah to me; "he won't be very hard on us."

"Nani-Tal was, however, rather severe. He said it was too bad of the rajah. How were they to live if that sort of thing went on? Then he turned to me and added: "Of course you couldn't manage it. If you'd gone through the course, you would have been all right. But there, it's everything for nothing, nowadays."

"My friend couldn't go to Thibet."

"He might have paid the fees anyhow," grumbled Nani-Tal, "and taken correspondence lessons."

We soothed him down with the promise of a handsome donation, and at last he consented to help us. It was only just in time, for at that very moment I felt my astral body uniting. A second later, it made a violent effort to project me; of course it saw Nani-Tal, and knew it was in for it. The old gentleman was too quick for it.

"Come out of that!" he cried, imperiously, and the wretch stood in the middle of the room.

It did my heart good to hear Nani-Tal fall on the creature. After giving it no end of a lecture, he concluded: "And now, young man, you'll just go back to your jackal for a thousand years and learn better manners."

The wretch protested; it asked for an elephant or even a tiger. Nani-Tal was obdurate.

"A jackal will just suit you," he said; "be off!" The creature vanished. Simultaneously Nani-Tal began to disintegrate.

"Wait a bit!" cried the rajah.

"I can't; I'm summoned to St. James's Hall. There's a large audience, and the professor has been in convulsions seven minutes."

I tried to grasp his hand in thanks.

"If you want another," he said, "you must go through the course—the full course. There's no other way. Let this be a lesson to you." And with this parting remark he disintegrated.

The rajah lit a cigar, and I, lighter at heart than I had been for many days, followed his example.

"It was wrong of me," said the rajah; "I won't do it again."

"It's a pity it turned out so badly," I remarked; "it was quite a comfort at first."

"They're all like that, unless you keep a tight hand on them. Shall you take the course?"

"Not I. I've had enough of it."

"Perhaps you're right. Excuse me; I have to go to the Deccan on business."

He fell back on the sofa, apparently in a trance, and I went off to a lecture. It makes all the difference whether you know how to do a thing or not.—*St. James's Gazette.*

DOMESTIC DIETETICS.

SPECIALLY PREPARED, FROM PRACTICAL TESTS, FOR THE LADY READERS OF THE "AMERICAN ANALYST."

SEASONABLE FOOD.

February.

MEATS.—Beef, mutton, ham, kidneys, liver, venison, sausage, pork.

GAME AND POULTRY.—Grouse, hare, pigeon, chicken duck, turkey, geese.

FISH.—Bass, cod, crabs, eels, carp, catfish, flounder, halibut, herring, lobster, mackerel, mussels, oysters, perch, pike, rock-fish, salmon, smelt, whitefish.

VEGETABLES.—Artichokes, beets, beans, cabbage, carrots, celery, garlic, lettuce, onions, parsley, parsnips, potatoes, shallots, spinach, squash, tomatoes, turnips.

FRUIT.—Apples, bananas, grapes, oranges.

PRACTICAL RECIPES.

TOMATO SOUP.—Put a quart can of tomatoes in a kettle, add a quart of water, and cook until tender. Take one and a half tablespoonfuls of flour and two tablespoonfuls of butter and cook them together with salt and pepper to taste. About fifteen minutes before serving add the butter and flour to the soup, strain through a fine sieve, and serve with crackers or dice of fried bread.

MEAT WITH RICE.—Chop fine some cold meat and put it over the fire with some butter and a little water. Pour it into a greased dish, sprinkle thickly with boiled rice, and bake a good brown.

MOLDED SALMON.—Take a can of salmon and carefully pick out all the bones and skin. Beat very light two eggs and mix with the salmon. Roll five fine soda crackers, add them also with a lump of butter the size of an egg, melted, salt and pepper to taste. Put this into a well-greased mold and steam for two hours. Serve with drawn butter sauce.

DRAWN BUTTER SAUCE.—Let three tablespoonfuls of butter get soft, mix it with two of flonr, and pour sufficient boiling water on it to make the right consistency. Do not boil it. Chop fine a cucumber pickle and add it, or else add a chopped up hard boiled egg.

ROLLED JELLY CAKE.—Separate the whites and yolks of five eggs. Put a cup of granulated sugar into the unbeaten yolks and beat to a cream. Take a cup of flour and two even teaspoonfuls of baking powder, sifted together. Add this to the eggs; whip the whites very stiff; add the juice and grated rind of a lemon to the batter and lastly the white. Bake in a shallow pan, spread with jelly, roll up.

LEMON JELLY FOR CAKE.—Take a cup and a half of sugar and put with it two unbeaten eggs and two tablespoonfuls of butter and the juice of two lemons. Boil all together until it is like thick jelly, in a double boiler. Spread on layers of cake as soon as done.

ORANGE PUDDING.—Peel and slice six oranges, take out the seeds; put a layer of oranges into a glass dish and powder thickly with sugar; add then another layer of oranges, and so on until the oranges are all gone. Take a pint of milk and put it to boil in a double kettle. Beat light the yolks of four eggs, and make a custard with them and a small cup of sugar; flavor with grated peel. Let the custard get cool, but not cold. When the orange has stood for two hours pour the warm custard over it; whip up the egg whites, sweeten slightly, and heap them over the custard.

MAGNETIC DEFLECTION.

A SCIENTIFIC MYSTERY APPARENTLY UNRAVELLED.

Just why the magnetic needle, instead of pointing due northward, inclines to one side to a greater or less degree, and why the region toward which it is directed keeps shifting slowly, is a problem which has for ages baffled the wisest men. But a solution of it whieh, if it is not accepted by the scientific world as complete and final, at least has much to commend it to instant favor, is now offered by Henry Wilde, F. R. S. It is briefly discussed in the *American Meteorological Journal* for January by that new, though already eminent, authority on terrestrial magnetism, Professor Frank H. Bigelow. Mr. Wilde has come to the conclusion that the outer shell of the earth and the great mass within rotate somewhat independently of each other. The interior portion, still in a liquid condition, he conceives as continuing to revolve about the axis which our planet had in its infancy; that is, one perpendicular to the plane of the ecliptic. Somehow, in the great cataclysm in which the moon was thrown off from the earth, the crust of our globe was, he thinks, skewed over to one side about twenty-three degrees; and this part of our sphere, therefore, involves about what we call "the geographical pole." The inner mass, like the other planets and the sun, he regards as electro-dynamic, while the shell is electro-magnetic. Furthermore, two causes are supposed to render those portions of the earth's exterior underlying the oceans more highly magnetic than others; the permanent low temperatures at the bottom of the ocean, and the greater amount of iron here included, the crust being thicker under the seas than elsewhere. For purposes of demonstration Mr. Wilde constructs a machine, consisting of one sphere within another slightly larger one, both converted into magnets by coils of wire encircling them. Upon those portions of the shell which correspond to the oceans he attaches magnetized sheet-iron. And by means of proper gearing he makes the inner and outer spheres rotate on axes 23½ degrees apart. Finally, for test purposes, he provides for temporarily fixing a magnetic needle at any point on the surface of globe. With this ingenious apparatus, he declares he can reproduce every known variation of intensity and direction in terrestrial magnetism of which he can find a record; and, what is the convincing feature of his experiment, the real magnetic history of all parts of the world for the last four centuries, so far as he can learn it, is actually repeated in the minutest details when the inner sphere is made to fall behind the outer one, in their revolution, at the rate of 22½ minutes of an arc annually! That exceedingly well-informed and cautious expert, Dr. Charles A. Schott, of the United States Coast and Geodetic Survey, tells Professor Bigelow that he has records of magnetic variations of which Mr. Wilde is evidently ignorant; and that when these are used as tests, in addition to the vast number of verifications Mr. Wilde has presented, the theory still holds good. The period of time he required for one whole "secular" change is 960 years, which agrees with the values of Sir William Thomson, though differing somewhat from tradition. The only doubt which will remain in any scientific mind regarding the soundness of Mr. Wilde's explanations after studying this magnificent demonstration, will probably spring from the notion, now widely entertained by physicists, that the earth is solid to its core. Sir William Thomson has expressed the belief that the whole globe is as rigid as glass, if not as firm as steel. Yet Mr. Wilde declares himself thus confidently: "From the various movements of the declination and inclination needles, correlated with each other in direction, time and amount, on different parts of the earth's surface, the theory of a fluid interior may now be considered to be as firmly established as the doctrine of the diurnal rotation of the earth on its axis."

INSECT NUISANCES.

HOW TO GET RID OF HOUSEHOLD PESTS.

In his fourth lecture before the Lowell Institute last week, Prof. Riley discussed the ever timely subject of household pests. The treatment of the subject was practical, and the remedies given for each particular pest are worth noting by the careful housewife. For certain of the commoner pests, such as the bed-bug, the carpet-beetle, the cloths-moth, benzine, applied in a fine spray by means of a hand-atomizer, was stated to be the best remedy, as in most cases it destroys the insect in all stages, including the egg. In using benzine, however, care must be taken that no fire or artificial light is in the room at the same time, the vapor of benzine being highly explosive. For cockroaches, bristle-tails, or fish moths, and fleas the lecturer recommended a liberal use of pyrethrum powder, in the form of either Persian or Dalmatian powder or Buhach. Fleas, he said, are generally introduced into houses by dogs or cats, and the presence of bed-bugs is not always a sign of uncleanliness, as they have been found under the bark of trees in the woods, and in country houses may sometimes be traced to this source. Keeping premises clean and dry was said to be in general a good preventive of insect pests. The common house-fly, with its complicated mouth and its stereoscopic eyes with 4,000 facets, was next discussed, and the lecturer then passed to an interesting account of the mosquito. The eggs of this insect are laid in the water, and the larva, when hatched, passes through several moults in the same element. the perfect mosquito finally breaking out from the pupal skin and flying away on her bloodthirsty mission. The female mosquito is the form which stings, the male seldom leaving the swamps where he dwells, and contenting himself with vegetable juices. In dealing with the mosquito as a household pest, good pyrethrum powder is probably the bess preventive of its annoyances. Moistened and made into little cones, allowed to dry and then burned in a closed chamber, this powder will either stuperfy or kill, and is one of the best means of freeing chambers from mosquitoes. Touching upon a theory advanced some years ago—that mosquitoes by their stings inoculate the body with malarial poison—the lecturer stated that in his judgment there was no connection between the two, though the same conditions which cause malaria are apt also to breed mosquitoes. In the case of elephantiasis, however, a disease prevalent in tropical countries, and due to a minute organism known as filaria it has been well established that the filaria in its life development must needs pass through the mosquito as an intermediary host.—*Boston Advertiser.*

CONVENTION OF PRESS CLUBS.

THE INTERNATIONAL LEAGUE MEETS IN SAN FRANCISCO.

In January, 1891, there was founded in Pittsburgh, Pa., the International League of Press Clubs, the general purpose of which, briefly stated, is to elevate the press club idea by bringing about a grievous sentiment of cooperation for mutual advantage and to promote good-fellowship among the members of those useful organizations. One of the editors of the American Analyst was a delegate from the New York Press Club to tho Pittsburgh meeting of 1891, at which the League had its birth, and he was again a delegate to the first convention of the League which was called to meet in San Francisco on the 14th of January of this year. A complete report of the proceedings of the latter gathering would have appeared in this issue of the American Analyst were it not for the fact that our representative was deputed by the League, while in California, to prepare an elaborate narrative of the transcontinental journey to be published in book form—an assignment to duty that is engrossing his close attention and the results of which will ultimately receive due attention in these columns. The following report of the business transacted by the convention, and abstract of the unparalleled trip to San Francisco and back is from the *Electrical Review*, whose editor is Secretary of the league.

The annual convention of the International League of Press Clubs was held in San Francisco, January 14, 1892. There were in attendance representatives from some 25 clubs, which includes a total club membership of 3,000. Sessions were held January 14, 15 and 19, at the very comfortable rooms of the San Francisco Press Club. Many valuable features looking towards extending the influence and increasing the strength of the League were, after careful consideration, adopted, and a few important changes in the by-laws were made. Among these were the establishing of a national home for newspaper workers who had, through age or infirmities, become capable of providing for themselves. This idea was ably represented by Mr. William Berri. chairman of the New York delegation, and was, upon motion, referred to the governing board of the League, as was also a proposition to raise a benefit fund for newspaper workers in temporary need. The next meeting will be held in St. Paul, Minn. An open literary session was held at the Powell Street Opera House on the evening of January 15. Interesting and instructive addresses were delivered by Miss Kate Field, Mrs. Frank Leslie, Mr. Foster Coates, Mr. Lynn R. Meekins, Mr. C. M. Shortridge and others, Mr. William Berri presiding at the meeting. Letters of regret, all of which strongly endorsed the objects of the League, were read at this meeting by the secretary. Among these were communications from Gen. Felix Agnus, Col. Elliott F. Shephard, George William Curtis, Col. John A. Cockerill, Max O'Rell, James Whitcomb Riley, Joseph Howard, Jr., Max Nordeau, of Paris, Chester S. Lord, Murat Halstead, Henry Watterson, William Penn Nixon and several others. These letters and addresses will appear with the abstract of the proceedings, which will be issued by the secretary of the League. Officers for 1892 were elected as follows: President, M. H. DeYoung, San Francisco *Chronicle*. Vice-Presidents, John A. Cockerill, New York *Commercial Advertiser*; Gen. Charles H. Taylor, Boston *Globe*; George W. Childs, Philadelphia *Ledger*; Gen. Felix Agnus, Baltimore *American*; P. B. Deuster, Milwaukee *Seebote*; Mrs. Sallie Joy White, president New England Women's Press Association. Secretary and Treasurer, Charles W. Price, *Electrical Review*, New York. Executive Commitee—T. J. Keenan, Jr., Pittsburgh *Press*: Stephen O'Meara, Boston *Journal*; Dr. John Frederick, New York *Americanische Schweizer Zeitung*; P. C. Boyle, Toledo *Commercial*; H. P. Hall, St. Paul *News*; H. D. Vought, Buffalo *Coarier*; William Berri, Brooklyn *Standard-Union*; John B. Dampman, Reading, Pa., *Herald*; S. G. Lapham, Syracuse, N. Y., *Courier*. The trip across the continent in the magnificent Wagner vestibuled train was so successfully made and so full of interest that the League decided to appoint a historian, and Major T. P. McElrath, of the American Analyst, of New York, was selected for this work, and he, in conjunction with the president and secretary of the League, will publish, in book form, a full report of the leading incidents connected with the trip. Nearly 9,000 miles were traveled by the delegates and their wives, the special Wagner train leaving New York the morning of January 6 and arriving in this city on its return at 10 o'clock P. M., January 31. It is impossible in this brief space to even allude to the many interesting features of this truly wonderful trip. The officials of the Wagner Palace Car Company, and the officials of the New York Central and Hudson River Railroad Company, spared no pains and no expense in looking after the comfort and safety of the travelers, and this was appreciated by the League, which, at the first session unanimously directed the president and secretary to telegraph from San Francisco the hearty thanks of the International League of Press Clubs. Mr. J. C Yager, division superintendent of the Wagner Palace Car Company, accompanied the party the entire distance, and Mr. M. C. Roach, general Eastern passenger agent of the New York Central, accompanied the party as far as Chicago, and Mr. W. B. Jerome, general Western passenger agent of the same company, accompanied the party from Chicago to San Francisco, and back to Detroit, where Mr. Roach and Mr. W. H. Underwood, of the Michigan Central, met them. Receptions, banquets and drives were given at all the points along the line, and upon the arrival in California the hospitality of that beautiful State was made evident at every point. *En route* West the party stopped at Chicago, Omaha, Denver, Salt Lake City and Auburn, Calitorina, and while in the State excursions were made to Sutro Heights, Monterey, San Jose, Mount Hamilton (to see the Lick Observatory). Sacramento, Fresno. Los Angeles, Riverside, San Bernardino, Redlands, San Diego, Coronado Beach Hotel, and at all the cities banquets and drives were given. At San Diego the entire party visited the cruiser "San Francisco," where a reception was held on board by Admiral Brown and staff. The wineries and orange groves, etc., of Southern California were visited and greatly delighted the Eastern delegates. The return trip was made over the Atchison, Topeka and Santa Fé railroad system to Kansas City, which road had the honor of hauling the train the greatest number of miles. The railroad officials of all the roads traversed were particularly courteous and welcomed the travelers most cordially. Stops were made on the return at The Needles, at the San Juan Capistrano Mission, at Santa Fé and Las Vegas, New Mexico, and at St. Louis a reception and banquet was enjoyed, also a delightful banquet at Toledo, Ohio, and at Detroit, Mich. At the last named city ex-Governor Alger tendered a reception to the entire party at his beautiful residence, and the next morning a sleigh ride and Winter view was enjoyed at Niagara Falls, the party reaching New York that evening, January 31. Not an accident of any kind occurred in the entire trip, undoubtedly the most remarkable railway tour ever made.

AMERICAN METALS.

THE MINERAL PRODUCTION OF THE UNITED STATES IN 1891.

A recent number of the *Engineering and Mining Journal* presents the official returns of production during 1890 and 1891 of nearly all the important minerals and metals, and a comprehensive statement of the sources of production, the occurrence of the minerals, the uses and values of their products, and in many cases the stocks of metal on hand at the close of the year. These statistics have been compiled with the greatest possible care, neither labor nor expense being spared to secure accuracy in every particular. The statistical reports given would form a book of about 450 pages.

We give the following abstracts: There have been no discoveries of great bonanzas, no mining "booms," during the year 1891, but the mining industry never was more prosperous, and its prosperity never before was founded on so substantial a basis. Large investments have been made in mining, and for the most part with prudence. Under competent and honest management these investments are making highly satisfactory returns. The dividends declared by mining companies during the year 1891 were much greater than for many years past, and represent a better return on the money actually invested than ever before in the history of mining in this country. The immense increase during 1891 in production of most of the metals has been a surprise. Copper in particular will, as usual, astonish the trade. The consumption of metals increases steadily, as might be expected from the growing wealth and prosperity of the country. Almost the only article which has fallen off has been steel rails, and with it pig iron. In this instance the financial condition of the railroads was the cause; while where consumption is made up of the purchases in small and various forms by the people at large, it steadily increases unless checked by very high prices. During the year 1891 prices were generally low and the people prosperous; they consequently purchased freely. Nothing more forcibly demonstrates the absurdity of our barbarous system of weights and measures than the compilation of statistics. We have tons of 2,240 pounds, of 2,000 pounds, and the metric ton of 2,204½ pounds, or 1,000 kilos, to say nothing of the other special tons used in certain industries. We have ounces troy and avoirdupois, and grains and grammes, with innumerable other weights. It is indeed high time that all civilized countries adopt the single metric standard of weights and measures—in which case the statistics compiled in one country will be available for comparison elsewhere without necessitating the laborious recalculation from one system into the other.

MINERAL PRODUCTION OF THE UNITED STATES IN 1890 AND 1891.

	1890.	1891.
Gold, ounces	1,588,880	1,620,000
Silver, ounces	54,500,000	58,000,000
Pig Iron, tons of 2,000 lb	10,307,028	8,976,000
Steel Rails, tons of 2,240 lb	2,095,996	1,090,000
Copper, lb	264,920,000	292,620,000
Lead, tons of 2,000 lb	181,494	205,488
Zinc, tons of 2,000 lb	66,342	76,500
Nickel, lb	200,332	144,841
Quicksilver, flasks	22,926	21,022
Aluminum, lb.	94,881	163,820
Tin, lb	....	123,366
Antimony Ore, tons of 2,240 lb	....	700
Anthracite Coal, tons of 2,240 lb	38,006,483	42,839,799
Bituminous Coal, tons of 2,240 lb	93,000,000	98,000,000
Phosphate Rock, tons of 2,000 lb	637,000	659,731
Salt, bbls. of 280 lb	9,727,697	10,229,691
Bromine, lb	310,000	415,000
Pyrites, tons of 2,000 lb	109,431	122,438
Sulphur, tons of 2,000 lb	....	1,200

The iron industry suffered a severe "set-back" during the past year, when the make of pig iron declined from 10,307,028 tons of 2,000 pounds, in 1890 to 8,976,000 in 1891, these figures being obtained from official returns made throughout the year. This heavy falling off was caused chiefly by the decline in the make of steel rails from 2,095,996 tons of 2,240 pounds in 1890 to 1,090,000 tons in 1891—a decline due partly to the poverty of the railroads and partly to the comparatively high price established by the steel rail association. In phosphate rock, in pyrites, in salt, in aluminum, in copper, lead and zinc there has been a very considerable increase in output, while tin, antimony ore and sulphur enter the list with modest but promising beginnings.

* * *

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KITCHEN HINTS.

USEFUL TABLE OF WEIGHTS AND MEASURES FOR COOKS.

One pound of wheat flour is equal to	1 quart.
One pound and two ounces of Indian meal make	1 "
One pound of soft butter is equal to	1 "
One pound and two ounces of best brown sugar make	1 " 1 "
One pound and one ounce of powdered white sugar make	1 "
One pound of broken loaf sugar is equal to	1 "
Four large tablespoonfuls make	½ gill.
One common-sized tumbler holds	½ pint.
One common-sized wine-glass is to equal	½ gill.
One teacupful holds	1 gill.
One large wine-glass holds	2 ozs.
One tablespoonful is equal to	½ oz

* * *

ENDURANCE OF DAGUERREOTYPES.—A remarkable example of the enduring qualities of the daguerreotype is to be found in the old graveyard at Waterford, Conn. In the headstone that marks the grave of a woman who died more than forty years ago her portrait is inlaid, covered with a movable metal shield. The picture is almost as perfect as when it was taken.

OXYGEN, HYDROGEN AND NITROGEN.—A. Leduc finds that the densities of the three gases are, within less than 1-10,000 part: hydrogen, 0.0695; oxygen, 1.1050; nitrogen, 0.9720. From these values the mean centesimal proportion may be reduced as 23.235 by weight and 21.026 by volume. According to these experiments the atomic weight of nitrogen would be 13.99, and that of oxygen 15.905.

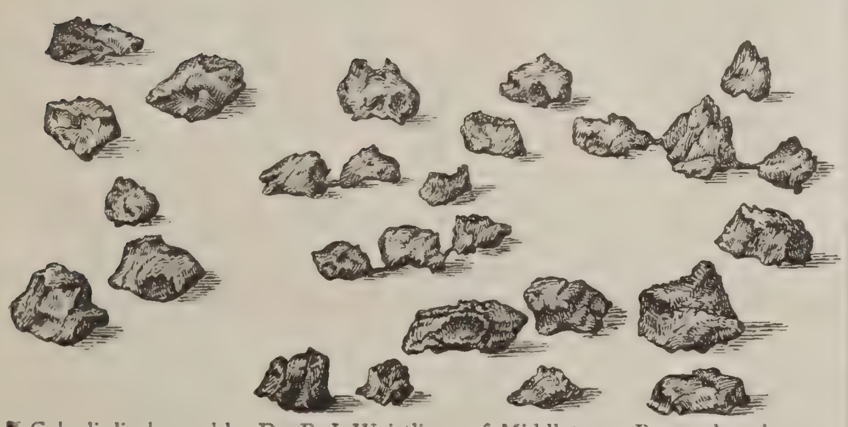
TRUE HEROISM.—Laura L. Randolph, M.D., in the *Chaperone* for January, says: True heroism dares to speak the truth, however unpopular it may be, is always brave and hospitable, giving what it has freely, without apology for what it has not, or for the lack of environments that satisfy the refined and fastidious tastes of cultured acquaintances. The great soul feels the littleness of common life, dwells within an atmosphere of its own, and smiles at the strife of its fellows for superiority in athletic sports, boating, driving, fishing, baseball; in wine and elegance of attire; as well as at the foolishness and folly of women, who are too apt to measure character by the garments worn, rather than the value of the wearer. Woman is everywhere a heroine, both by nature and necessity.

PAPER A HUNDRED YEARS HENCE.—Experts are predicting that the books of to-day will fall to pieces before the middle of the century. The paper in the books that have survived two or three centuries was made by hand, of honest rags, and without the use of strong chemicals, while the ink was made of nut galls. Today much of the paper for books is made, at least in part, of wood pulp, treated with powerful acids, while the ink is a compound of various substances naturally at war with the flimsy paper upon which it is laid. The printing of two centuries ago has improved with age; that of to-day, it is feared, will, within fifty years, have eaten its way through the pages upon which it is impressed.—*The Paper World.*

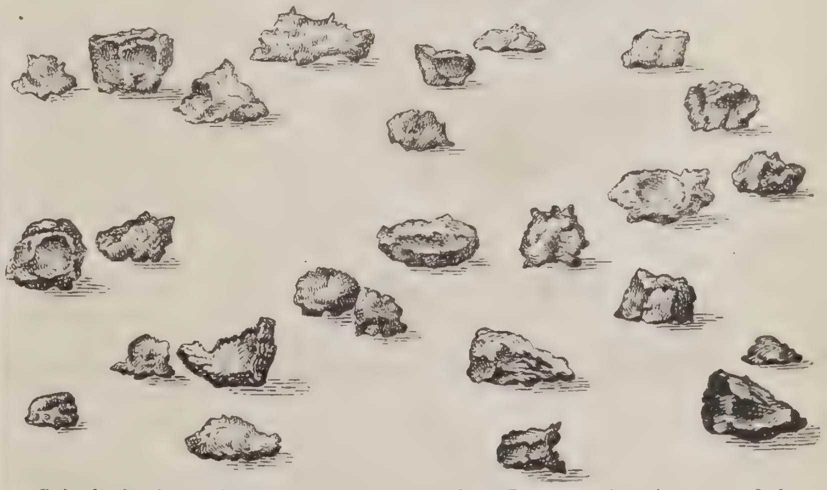
RECENT CHEMICAL EXAMINATION OF SWEAT.—The secretion of the sudoriferous glands of both man and lower animals has been the subject of critical examination by Gaube. He finds the sweat of man differs from that of the cow, horse, cat, dog and hog, by being acid in reaction, instead of alkaline, but fails to mention the nature of the acid. Gaube also finds digestive ferments in the perspiration of both man and the lower animals. He has separated a pepsin, an amylase and an emulsion. He terms these diastic ferments "hidrozymases" and states that the sweat of man contains a larger proportion than the secretion of other animals examined. In the light of the recent investigations of ferments, it is not startling to discover them in any of the secretions.

BUFFALO LITHIA WATER,

FOR URIC ACID DEATHESIS, STONE IN BLADDER, Etc.



☞ Calculi discharged by Dr. B. J. Weistling, of Middletown, Pa., under the use of the water this represents. They are of the Uric Acid and Phosphate variety, resembling hempseeds, luminated; flattened, oval, smooth and fawn colored.



Calculi discharged by R. L. Roys, Meriden, Conn., under the use of these waters. These are of the Uric Acid and Oxalate of Lime variety. Dark brown hard, studded with tubercles.

WATER IN CASES OF ONE DOZEN HALF GALLON BOTTLES, $5.00, F. O. B. HERE.

☞ For Sale by all first-class Druggists, and Pamphlet sent to any address.

THOMAS F. GOODE, Proprietor,

BUFFALO, LITHIA SPRINGS, VA.

CHARCOAL BRICKS.— At Fagersta, in Sweden, briquettes are now being manufactured out of wood charcoal by the addittion of coal tar. A paste is made out of the charcoal and the tar, which is transferred to a press, whence it issues in slabs about 16 in. thick, which are exposed to the air on the ground for sevaral weeks, during which period the water in the tar evaporates. This combustible has been successfully employed for steam boilers, its calorific power being said to approach that of the best English coals.

ARTICULAR RHEUMATISM.—In the *North American Practitioner* for September, 1891, Dr. Joseph Lane Hancock writes that for the last two years he has been treating cases of inflammatory rheumatism with a local application of carbolic acid applied in the form of a solution on a warm flannel cloth wrapped closely around the entire affected joint. Dr. Hancock states that his custom is to leave this dressing on overnight, placing it in position just before the patient retires.

ELECTRICITY AT THE WORLD'S EXPOSITION.—The Fine Arts Building is to have no fewer than 12,000 incandescent lights. The grand Manufacturers' Hall is to have 2,000 arc lights of 2,000 c. p. each. The total reached so far for all the buildings is 5,180 arc lights and 14,700 incandescents, with some 10,000 more incandescents for the Adminstration Building. Allowing 20 cents per night per arc, that means over $1,000 nightly for arc lighting; and should all the 25,000 incandescents burn every evening there will be a further item of another $1,000, assuming a rate of one cent per lamp per hour for four hours. The lighting effects will certainly be the finest the world has ever seen.

ELECTRIC MAIL CAR.—One novelty in the way of electric traction on St. Louis and suburban Railway now in successful operation in St. Louis, Mo., is the application of electric motors to a United States mail car, which makes regular trips over the entire line, distributing and collecting the mail at the different railway stations, as is done on steam railways. This car is of the same length as an ordinary steam railway mail car, and is equipped with double trucks with 36 inch wheels, a Thomson-Houston motor of 15 horse power capacity being connected to each truck. A very high speed is attained, and the delivery and collection of mail is made without stopping the car, as in steam service.

A Tonic

Horsford's Acid Phosphate.

A most excellent and agreeable tonic and appetizer. It nourishes and invigorates the tired brain and body, imparts renewed energy and vitality, and enlivens the functions.

Dr. EPHRAIM BATEMAN, Cedarville, N. J., sasy:

"I have used it for several years, not only in my practice, but in my own individual case, and consider it under all circumstances one of the best nerve tonics that we possess. For mental exhaustion or overwork it gives renewed strength and vigor to the entire system."

Descriptive pamphlet free.

Rumford Chemical Works, Providence, R. I.

Beware of Substitutes and Imitations.

CAUTION:—Be sure the word "Horsford's" is on the label. All others are spurious. Never sold in bulk.

MONOCHROMATIC LIGHT.—The usual plan to obtain a source of monochromatic light consists in the use of a bead of sodium carbonate heated by a Bunsen flame. Its main fault is its lack of brilliancy. A preferable method has recently been devised, says *Industries*, consisting in heating a stick of compressed sodium carbonate in a Linnemann's burner, which has been successfully used in the production of the oxyhydrogen light with zirconia in place of lime. As can easily be understood, the desired intensity is easily-attained by this means.

SODIUM FLAME.—In the course of some lectures delivered recently at the Royal Institution by Professor Dewar, a curious experiment by M. Cornu was repeated bearing relation to the question whether the yellow light emitted by flames charged with common salt is due to metallic sodium or to the undecomposed molecules of chloride of sodium. Into a large glass globe a tube conveying hydrogen to the flame at its mouth was inserted; the hydrogen was charged with solution of chloride of sodium by means of an ordinary spray-jet. Through a side tube chlorine entered, and the products of combustion were carried off though a third tube. Under these circumstances, in an atmosphere of hydrogen burning in chlorine, it is impossible that metallic sodium can exist, and an ordinary hydrogen instead of the yellow sodium flame is seen. This shows that in ordinary flames charged with common salt the yellowness is due to free metallic sodium.

BUSINESS NOTES.

AN INTRODUCTION

to the through car service of the Wisconsin Central Lines and Northern Pacific Railroad is unnecessary. Its advantages and conveniences have been fully established. It is the only route to the Pacific coast over which both Pullman Vestibuled first-class and Pullman Tourist Cars are operated from Chicago via St. Paul *without change*. Through train leaves Chicago every day at 10 45 P. M. The traveler via this route passes through the most picturesque, interesting and prosperous belt of country in the Western World. There is scenery with most striking contrasts that range from the rolling prairie and the pine forest level to the wildest passes of the wildest mountains in the world. There is a series of the noblest cities, towns and villages of every variety and size, from the hamlet or the tiny farm, upward; the richest mines in the world; the greenest and most lasting pasturage; the wildest scenery on the continent; canons as weird as a nightmare; hills, snows and peaks startling in the magnificence of their beauty, and a perfection of comfort in traveling that has never been surpassed. Fast train via the Wisconsin Central Lines for St. Paul. Minneapolis, Ashland and Duluth leaves Chicago at 5.00 P. M. daily with Pullman Vestibuled Sleepers and the Central's famous dining cars attached.

HORSFORD'S ACID PHOSPHATE

For Wakefulness. Hysteria, and other diseases of the nervous system. As a nerve tonic use Horsford's Acid Phosphate. Dr. S. L. Williams, Clarence, Iowa, says: "I have used it to grand effect in a case of neuralgic fever, and in uterine difficulties. Also, in cases where a general tonic was needed. For a nerve tonic I think it is the best I have ever used, and can recommended it most confidentially."

HOW'S THIS!

We offer One Hundred Dollars Reward for any case of Catarrh that cannot be cured by Hall's Catarrh Cure.

F. J. CHENEY & CO., PROPS., TOLEDO, O.

We the undersigned, have known F. J. Cheney for the last 15 years, and believe him perfectly honorable in all business transactions and financially able to carry out any obligations made by their firm.

West & Truax, Wholesale Druggist, Toledo, O., Walding, Kinnan & Marvin, Wholesale Druggists, Toledo, Ohio.

Hall's Catarrh Cure is taken internally, acting directly upon the blood and mucous surfaces of the system. Price 75c. per bottle. Sold by all Druggists. Testimonials free.

CLEVELAND'S

One rounded teaspoonful of Cleveland's Baking Powder does more and better work than a heaping teaspoonful of any other. A large saving on a year's bakings.

BAKING POWDER

A pure cream of tartar powder.

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Cleveland's is the standard, it never varies, it does the most work, the best work and is perfectly wholesome.

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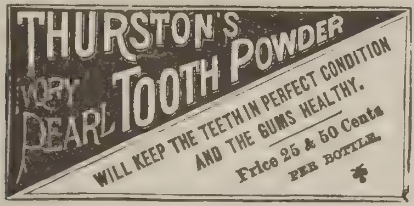
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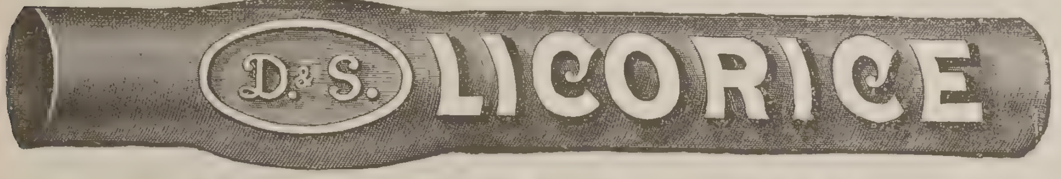

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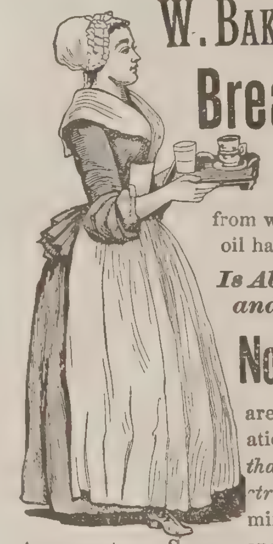

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In consequence of Imitations calculated to deceive, we call attention to the fact that each bottle of the Original and Genuine WORCESTERSHIRE SAUCE, bears our signature thus—

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CORRESPONDENTS AND EXCHANGES.

Please direct all business communications to
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CONTENTS.

Atlantic to Pacific 87
Clams with Legs 87
Domestic Dietetics 90
Editorials 85
The Paddock Pure Food Bill; A Murderous Creed; Greedy Credulity.
Mosaics 90
New England Kitchen 86
Olive Oil 90

THE PADDOCK PURE FOOD BILL.

Referring to the Pure Food bill introduced by Senator Paddock, which was discussed in the last issue of the AMERICAN ANALYST, the *Commercial Bulletin* says, that in judging of the fitness of Senator Paddock's bill to accomplish the ends desired, the purposes of such legislation should be kept distinctly in view. They are: (1) To prevent the seller of merchandise from deceiving the buyer as to quantity, quality and value, and (2) To prevent the sale of articles clearly injurious to health. Judged by these ends, Senator Paddock's bill is not comprehensive enough. Deception in other things than food and drugs is equally reprehensible. The Act should be made to cover all misrepresentaions practiced by dealers without regard to the nature of the product concerned. There is a further objection to the bill, which, if it becomes law, may defeat its intent. By specifically enumerating what are within the meaning of the Act considered to be adulterations and misrepresentations, it provides a loop-hole for evasion. It is impossible for one man, or even a number of men, to draw up a specified and detailed list of even the misrepresentations practiced, to say nothing of those which may hereafter be concocted. The English merchandise marks Act of 1887, so far as it affects fraudulent adulterations and misrepresentations in trade, will serve to show the best plan for such a law here. After providing for the proper punishment for "applying any false trade description to goods," it defines "trade description" as "any description, statement or other indication, direct or indirect. (a) As to the number, quantity, measure, gauge or weight of any goods. (b) As to the place or country in which any goods were made or produced. (c) As to the mode of manufacturing or producing any goods. (d) As to the material of which any goods are composed. (e) As to any goods being the subject of an existing patent, privilege or copyright." Some of the greatest frauds and deceptions practiced in the United States to-day are in selling goods in packages of less weight than represented, and in representing inferior goods to be the product of reputable firms, which at great expense and solely on merit have built up a large trade. Our patent and trade-mark laws do not fully cover these cases. By an intelligent modification of these laws. so as to make them applicable to designs, patterns, etc., which deserve equal protection against appropriation with new inventions, and by including in the Act a general law against adulteration and misrepresentation, the purposes sought could be accomplished with better results than are possible from special and particular legislation. Senator Paddock's bill is in the right direction, but it is not comprehensive enough.

◆

A MURDEROUS CREED.

According to the San Bernardino (California) *Herald* a woman has just been tried and acquitted in that city for causing death by Christian Science medication. The victim or patient was a mail carrier, some thirty years of age, and the accused woman was called in to act as nurse a few days before he died of acute meningitis. During her charge as nurse she not only refused to permit the attendance of any physician, but she would not even let the sick man be seen by his family, and merely told them that he was getting better and needed only rest. For several reasons the trial was of unusual interest. A statement was made by one of the witnesses showing briefly but definitely the singularly unscientific and dangerous principles of this new system of healing. "If I were called upon," she said, "as a Christian Science healer to attend a man who was delirious and who had a swollen eye, and the eye began to protrude from its socket, and was of gradual growth for six days, with Christian Science I would not think it necessary or proper to call in a surgeon. Christian Science claims to heal as the Master healed; it is the same truth that the Master taught, to go out into the world and preach the Gospel and heal the sick; it is upon that platform that true Christian Science works and no other." If this means anything, it means obviously that this so-called science is founded absolutely on miracle, and rejects wholly the relations of cause and effect, which alone are recognized by either science or common sense. The influence of mind upon matter, hypnotic suggestion, the personalty of the physician, and even careful dietary, are all equally rejected by the Christian Scientists as essential or operative, although deemed by modern physicians to be in many cases no less efficacious than the drugs which used to be their sole reliance; and although it is only by the accidental existence of one or other of these agencies that any cure claimed to be due to Christian Science is rationally explicable. In the light, then, of this declaration, Christian Science must be regarded as out of all relation to the facts of experience, and quite as ineffectual for good as the administration of bread pills, less useful, indeed, than bread pills, when, as in the San Bernardino case, the patient is insensible and incapable of faith or hope.

◆

GREEDY CREDULITY.

Large sums of money, strange as the fact may appear, have been collected in this country from credulous people, who are induced to believe that there are vast estates abroad awaiting claimants and they may be the lucky inheritors. This swindle began in a very small way, only a single estate being represented by the promoter of the job. He wrote a very plausible account of the death of a large property-holder in England, without direct issue, whose estate was administered upon by the public authorities, and the proceeds were deposited in the Bank of England awaiting a discovery of the heirs. These deposits had accumulated so that an enormous sum was now held in trust for any of the kindred who could establish a title to it. He described at some length the family record, and closed by soliciting all persons in the United States bearing the family name to send him their address, when he would communicate further with them. It is said that thousands of persons sent in their names, and allowed themselves to be enrolled as possible heirs to the glittering millions ready for distribution. They were assessed five dollars each towards the expenses of investigating their title to be represented, and after they were assured, each and all, that the result was favorable, and that they were in the line of descent, they were again taxed for the legal expenses of establishing the claim and obtaining the property. Flattering reports were made from time to time, which newspapers given to sensational stories were only too eager to publish, and it is said that the originator found the returns richer than an ordinary gold mine. Before the placer was exhausted it is said that nearly a quarter of a million dollars had been gathered in from the eager dupes who had responded to the appeal.

READ PAGE 93.

THE NEW ENGLAND KITCHEN.

HOW THE MILLION ARE TAUGHT TO FEED THEMSELVES.

In the days of our great-grandfathers a large house with a big open fire-place, a bar and a landlord with a military title constituted the leading characteristics of a tavern. In those times meats and vegetables were cooked in spiders, or large iron kettles hung on cranes, which enabled the cook to swing them over the fire, and bread was baked in the old-fashioned Dutch oven. That method of cooking was considered par excellence in those days, and the fare provided was in keeping with the primitive style which obtained. Out of the tavern the modern hotel has been evolved; and to-day an American hotel, with its complex system of management, its army of employes, its elaborate furnishings and decorations, its beauty of architectural design, means a veritable palace of luxury such as "The Virgin Queen" never dreamed of. And, as a natural sequence, improved modes of preparing food have been put to use from time to time as the demands of modern civilization proved the old ones insufficient to meet the requirements. So we of to-day may profit by the steps which have finally led to the methods now in practical and successful operation in three cities of the United States—Boston, Providence and New York. Any one passing the corner of Hudson and Charlton streets will be attracted by a large sign, on which are the words, "Food sold must be taken away." One's curiosity is at once excited, and we read, "The New England Kitchen." We enter, and are shown the modus operandi of supplying several hundred persons daily with the most healthful, well-cooked food that modern science and consummate skilfulness can produce. While we are given hints as to the scientific part, we are initiated into the art of preparing food material so that no part of its nutritive quality is lost, and at the same time the most palatable soups and meats are offered for our inspection, and we are assured that they are the resultant products of the improved system of cooking which it is the object of the promoters of the undertaking to introduce to the public. In the mode of preparing the different edibles almost perfect uniformity is obtained as to quality and flavor, that is to say, the tomato soup on sale to-day is just as thick and just as palatable as that sold last week. And it is so with everything on the price list. This New England Kitchen, at 341 Hudson Street, is under the supervision of the eminent scholar and thinker, Dr. Thomas Egleston of the School of Mines. The necessary funds to establish the kitchen until it shall become self-sustaining are furnished by a New York philanthropist, and it is hoped that the tempting soups, meats, breads, grain foods and puddings offered for sale by the pound or pint will tell their own story of the superior methods employed in preparing them, and that, in this way, housewives, both rich and poor, may be induced to visit the kitchen and get such information and appliances as will enable them to cook anything and everything with the least possible expense for fuel, and in the cleanest and most economical way yet evolved. The main object of the promoters of this enterprise is to furnish wholesome food for families, workshops, stores and factories in quantities to suit at surprisingly low prices, thereby lessening the quantity of food material now consumed or wasted and at the same time improving the quality. Nor is this all. It is hoped that these public kitchens will revolutionize present methods of cooking, and make it possible to obtain nutritious food at the least possible cost, by providing, as fast as is practicable, kitchens for the people all over the big cities, so that it will be just as convenient to order a quart of soup or a pound of beef-hash and have it sent to any given address as it is now to give an order for milk or bread. It will be many months before these kitchens are established at convenient points throughout New York, but the soups, meats and other edibles may be carried long distances and yet be received at their destination smoking hot; for, by means of large tin pails set into larger ones, made of a substance which is an almost perfect non-conductor of heat, the meats, puddings and vegetables may be sent to families or shops in the very same vessels in which they are cooked, and even if not eaten at once will not get cold, as they retain the heat for several hours. It is to be hoped that ere long we will see many of these kitchens in New York. Similar ones are now and have been for years in successful operation in several European cities; in the city of Stockholm, if we are correctly informed, in a single kitchen as many as eight thousand people are provided with food of such quality as it otherwise would be beyond their ability to obtain, and at prices much lower than even thoroughly well-informed persons could buy the uncooked food material at retail stores. This great subject, and it is a great subject when we remember that it is estimated that nearly nine-tenths of the earnings of the American people go to buy food, presents itself to us in another light. Just think of the burden it takes off the mothers and wives! Of the benefits that are bound to accrue by giving women more time for self-improvement. How many women of the laboring class find time to read a morning paper? How few can spare the time from household duties to make suitable clothing for themselves or children? How very few are to blame if those children grow up useless members of society? This is just what the average tenement-house woman has not got; and it takes time to look after the education and morals of children; and to do it properly it takes brains and education as well. Give women cooked food and you give them practically more time to attend to pressing duties and to improve their education. With soups at from 10 to 15 cents a quart, and meats at from 8 to 16 cents a pound, and other food at proportionate prices, of such quality, too, as is obtainable only in first-class hotels and restaurants, where skilled cooks are employed, a family of four adults and four children can fare well for $50 a month, allowing that the children eat the same as women. Right here we wish to have it noted that women do not eat as much as men who are employed at the same kind of work. It is strange, but nevertheless true. Workmen, too, will find out that hot soup will "warm them up" better than hot whiskey, and their cold lunches will be a thing of the past. It will not be long before hot soup, at least, will be on sale in all parts of New York and other large cities; and, as hot beef tea is now, to a certain extent, taking the place of intoxicants among business men, plain but wholesome soups will become an effective weapon to use against intemperance among all classes. "The Lord sends food and Satan sends cooks" is an agonized cry, which, were one ubiquitous, one could daily hear ascending from the table of many a diner, as with a petulant swish of his napkin he angrily sends away one dish after another of good but badly cooked food. He knows the food is good, because he picked it out carefully and bought it at the best shops; and he knows it is badly cooked because, although he has hardly tasted each dish, he has suffered the pangs of dyspepsia for having so mistreated his stomach as to eat such stuff before. A hungry man is never a happy man; so, with his hunger unappeased, he rises from the table, ugly and cross, and commences to relieve his perturbed spirits by scolding the children. He kicks at the cat and swears at the dog; threatens the life of the cook in an undertone, and glares at his wife, who sees she dare not ask him for money to pay "that pressing bill," while deep down in his heart he harbors dim, shadowy thoughts of divorce. "What's the good of having a home—why have all the burden of family cares—if one can't get a decent meal in the house?" he reasons. He then, if he is the man we think he is, sneaks off to bed to enjoy his feverish and unrefreshing rest, dreaming presently of a paradise on earth, where all food is palatable, because it is properly cooked. But from this dream he awakens presently to the consciousness that there is no paradise on earth, and his dream is but a dream. But this man did not know of the advanced theories of Edward Atkinson and others of his ilk. Chemical standards of nutrition, such as have been in use in Germany and France for many years, were as far removed from his calculations as the countries themselves from his home in New York. As for the American standard, which Prof. William O. Atwater, Mrs. Ellen H. Richards and others have elaborated, he neither knew nor cared. Calorics, units of heat, he considered well enough in their way, and doubtless interesting for some people to bother themselves about; but not for him. But, strange as it may appear, when this same individual became convinced that 4,000 calorics constitute a day's ration, he began to think that possibly it would be well for him to learn what is meant by "calorics," "standards of nutrition," etc., and by a little research he was able to learn that the exact amount of food required by a man at hard work in New York is 4,060; for a woman at light exercise, 2,300 calorics; and that a woman at moderate work requires the same amount of nutrition, estimated by calorics, as a man at light exercise—or, in other words, when he is doing nothing in particular but amusing himself on a summer vacation. As these calorics, or, rather, the food material to make them, are sometimes estimated in pounds, it is about as follows:

PER DAY.

	Ounces.
Meats	10
Suets or fat	1
Salt	1
Butter	1½
Fish	3
Bread	14
Hominy, oat or corn meal	6
Beans or peas	2
Sugar	3
Roots and other vegetables	12½
Total	54

After having got as far along as "calorics," he became interested in trying to ascertain just how many calorics are found in different meats, fish and vegetables, and came to the conclusion that he might eat a great deal without getting very much nutriment out of his fare; so he set about buying only really nutritious food materials, bought himself a stove, such as is used at the New England Kitchen, and now does his own cooking, it is said. People do not know how much they ought to eat, how much they do eat, nor how much it costs them to eat, as a rule. If any one doubts this rather broad statement let him catechise one or two intimate friends and he will become convinced of the truth of the assertion. Before writing this article the subject of the New England Kitchen was purposely brought up, and a young lady typewriter asked to estimate how much it would cost her to board herself if she could buy cooked food at the prices named by the New England Kitchen, and after considerable figuring she concluded she could get as much and as good fare as she is accustomed to for $1.37 a week! How near did she hit the mark, think you? Mr. Edward Atkinson would say that her estimate is too high; that the names of the tempting dishes prepared at the New England Kitchen had caused her to make herself believe she could eat more than is good for a girl to have, unless she is doing very hard work. However, using the average retail prices prevailing in Boston in the spring of 1891 as a basis, it is claimed by those best fitted to know that one dollar's worth of food material—consisting of meat, grain, vegetables—is sufficient for an average man. If he cooks it in a proper way, he will have all he needs to eat. All he needs to enable him to cook it properly is a cooking pail, with a book that accompanies it. The estimate of one dollar a week is, of course, intended to cover the cost of the food material only, and cooked, too, in the most healthful way.

CLAMS WITH LEGS.

A LIKELY CALIFORNIAN STORY ABOUT CLAMS THAT STALK ABOUT AND FEED ON GRAIN.

A despatch from Fresno, Cal., of February 14, says: "Many remarkable instances have been noted of the ease with which nature accommodates herself to all sorts of conditions. Fish that climb trees, others that travel on land from one body of water to another, and numerous similar freaks are well substantiated facts. But the strangest instance of evolution caused by necessity is to be found at Tulare Lake. A gentleman who lives near Lemoore, Tulare County, was in Fresno yesterday, and in conversation with a *Journal* correspondent he gave the following account of a most peculiar nuisance that is greatly annoying farmers in that locality. The gentleman, whose name is D. Ennis, says: 'Lake Tulare has fallen about four feet since last fall. This means, of course, that nearly a mile of the low, nearly level land that borders the lake has been rendered dry and cultivable. There are large numbers of shellfish, such as clams and mussels, in the lake, and the receding water has left them high and dry on land. Vast quantities of them have been ploughed under during the winter, and the moist, warm ground has preserved and maintained life. But the most remarkable thing is that they have undergone a metamorphosis, or have been evolutionized, inasmuch as the clams and mussels that were deposited on dry land have grown well defined legs or claws from the under part of the shells, or rather that part of the shell which lay underneath when the clam was in repose. My eldest daughter, Kate, first noticed this abnormal growth during a ramble around the place just before Christmas. She gathered a few of the mussels in her apron and brought them up and showed them to her mother and to me. We did not inspect them closely, but saw that three distinct little protrusions, in triangular shape, marked the bleached side of the shells. On one of them, which seemed larger or further evolutionized than the rest, we saw tiny legs or feelers wiggling about. As I have just said, we didn't pay much attention at that time to the shells Kate brought in. On Thursday last, however, I had occasion to go down over my land, where fall wheat had been sown. It is coming up nicely, and is from one to three or four inches high in the most favored portions of the field. I noticed many mussel shells lying around. Some of the shells were slit and broken, while others were intact. On the part of the land that had been recently reclaimed I observed that the wheat was nibbled off and that little masses of half-masticated sprouts were lying around pretty thickly. I was willing to attribute the nibbling to the water fowls and jack rabbits, but I was for a time at a complete loss to account for the chewed-up masses of tender shoots that dotted the ground in all directions. I stopped and began to think. Soon I noticed that the clam shells were quite plentiful about where I stood. A sudden movement near my feet caused me to stoop and investigate. Here I saw the most surprising thing that ever came beneath my notice. The moving object was nothing more nor less than an evolutionized clam or mussel, walking on its three legs, while with the sharp edges of its shell it was biting off and chewing the young and tender grain. I was simply amazed, but soon recalled the apron full of mussels which my daughter Kate had gathered. I stooped down and tried to pick up the clam, but it ran away at a tolerable rate and I was compelled to knock it over with a singletree which I was carrying. I gathered it up and it snapped viciously at my fingers and tried to wiggle away. On examination I saw that its mouth, or rather the muzzle portion of the creature, was full of young wheat, and that a green saliva was present where colorless juices exist in the water-living animals. Now, my theory of this transformation is that nature has determined not to let this helpless creation starve, and with that end in view has endowed the stranded animals with a means of locomotion on land, and further given them a faculty for existing on the food that has hitherto been foreign to their taste. As you know, the wheat sprouts are exceedingly tender and full of nourishing juices. The clam with its three legs walks about and nibbles a mouthful of sprouts, then he begins to masticate it. When the juices are extracted he retains the fluid and expels the fibrous portion of the plant, and by virtue of his recognized nature he is nourished and grows fat in the new line of living. Of course, I am greatly interested in the evolutionized clam or mussel, as he exists on the reclaimed lands of Lake Tulare, but I am out nearly nine acres of as promising grain as ever grew, by reason of their depredations. We farmers don't have much time to study science, and I don't know what may exist in other parts of the world, but I must say that nothing similar to this discovery has ever been mentioned in any books or papers I have read. The clams seem to have lost all desire for water, and I don't know what they will do when the grain grows a little higher and the juices begin to dry up in the stalks. Perhaps they will then migrate to the lake, or perhaps they will die of starvation. Anyhow, I am preparing to guard against future encroachments, and will hire enough men to chase them off the place, after which I will build a clam-proof fence around my ranch, or else sell out cheap to some one who hoots at this statement of what is Gospel truth, and can be proved by a dozen of my neighbors, who have lost more or less wheat and alfalfa in the same way.' Mr. Ennis returned to Tulare on the southbound train yesterday evening. He will be up again the latter part of this week, or the first of next, as a witness in a lawsuit, and he has promised to bring with him several specimens of the clams for exhibition, so that doubters may be convinced. The clams will be placed in a convenient show window."

ATLANTIC TO PACIFIC.

A NOTABLE TRANSCONTINENTAL JOURNEY FROM A FEMININE POINT OF VIEW.

Probably the most notable excursion ever made between the Atlantic and the Pacific Coasts was that of the newspaper men who went last month as delegates to the Press Club League Convention at San Francisco. The following lively narrative of the trip, outward and return, was not intended for publication, being the notes jotted down as a diary by one of the ladies of the party, solely as a guide for her own future remembrance. But the journey—if not the observations—of one was the journey of all, and the hasty notes will be welcomed by all who shared in the memorable experiences they record.

Arriving at the Grand Central depot at 10.30 on the morning of January 6th, the International League of Press Clubs, represented by their delegates, with their wives or sisters, met together, some for the first time, and all filled with delightful anticipations of our westward trip. We embarked upon a special Wagner car train, under the charge of Mr. J. C. Yager. Among the notables were Mrs. Frank Leslie, with her husband, Mr. W. Wilde; Miss Kate Field, Mr. Marshall Wilder, Miss Elita Otis, and other lesser lights. When we were assigned to our different sections and state-rooms, and, having said "good-bye" to the many friends who had come to the depot, to see us off, we were whisked away—a happy crowd, bent upon having a pleasurable time. I am not so fortunate as to have a state-room, but my friend, Madam Charlouis, has, and as soon as our various bags and bundles were arranged, we sat down in her snug little state-room to have a chat, and very soon others came in, among them Mr. Pearsall and Mr. Seaver Page, who entertained us most delightfully. Have had lunch, our first meal in the dining car, and now for our siesta.

11 o'clock, January 7th.—Glad to find it clear and bright, but five hours late, and will not reach Chicago until two o'clock in the afternoon. Have just been visiting Mrs. Worrel, and with other ladies was escorted through the whole train of seven cars by Mr. Roach. And now we are all acquainted, and, as it is perfectly easy to go from one car to another, as they are all vestibuled, we enjoy visiting one another. The snow is very deep all along the road We arrive at Chicago at three o'clock and find the reception committee very much disappointed that we did not arrive earlier in the day, as they had made grand preparations for our entertainment. We were, however, taken around the Fair grounds on a special train, which was attached to ours, and after coming back to the city visited the *Chicago Herald* office, where we were served with a delightful luncheon in Mr. Scott's office, and where I had the misfortune to lose my Alaska sable muff. Then there were speeches and a look over the whole of that magnificent building. Then we were taken in carriages to the Press Club, where one of our number (Mr. Foster Coates) made a speech, which made the Chicago chairman very mad. After which tickets to any or all of the theatres were given, but my husband and I preferred visiting the Auditorium, a very handsome hotel, which we enjoyed very much. The Charity Ball was being held there that evening, and Gen. Miles and Mrs. Potter Palmer led the opening grand march. At 11 o'clock we left the City of Chicago for Omaha, and right glad we were to get into our berths, for all were very tired.

Morning of the 8th.—We have breakfasted, and the morning is bright, with the mercury down to 10 deg. below zero, but the cars are delightfully warm. I have been having a very pleasant chat with Mrs. Frank Leslie—as who would not with such a clever woman; she certainly is entertaining. We have made such good time that we will reach Omaha one half hour sooner than we expected. It is now twelve o'clock, and lunch will not be served on the train, as we are to have some kind of an entertainment at the *Bee* office, so I go "a-visiting" in the next car in order to pass away the time. We reached Omaha at 2 P. M., and immediately Alick jumped upon the train and remained with us while we were in that city He is looking better than I ever saw him. It is very cold and windy. We all got into carriages and were driven to the *Bee* office, where speeches were made in the rotunda, after which we were taken up-stairs to a reception room, and lunch was served, after which Alick took us round the city in the street cars, where we got an excellent idea of it, and left at four P. M., with the knowledge that Omaha was a very wide-awake place, built on hills. After dinner, at six o'clock, we all assembled in our dining car and were entertained with recitations by Mr. Page, Mr. Coates, Marshall Wilder, Mr. W. Wilde, and singing by Mr. Pearsall, who has a very fine voice. As we have plenty of wit and intellectuality on board the train our entertainments are gems in themselves.

Saturday morning, January 9th, we arrived in Denver at 11 o'clock A. M. Went directly to the hotel, where I took advantage of the charming lounge I found in my room to lie down, when I immediately fell asleep instead of going out to look at the city, as most of the party did. When I awoke I found my husband waiting to take me down to dinner. I will never forget that delightful slumber. After dinner all the party were driven in carriages through the city, which will in time be very handsome, but at present has a very new appearance. After a while Mr. Page, Mr. Keller, my husband and I, who were in one carriage, left the procession and went off in another direction to visit the gold and silver mines, and there we saw the process of smelting and running the ore into pigs. On returning to the hotel and making some little change in dress, we proceeded to the dining-room, after which we went to the theatre to see "The Texas Steer." All the theatres were open to us who wore the I. L. P. C. badge, and the boxes were at our service. After leaving the theatre we went to the train, and glad I was to get there, for sight-seeing is after a while tiresome, however delightful. On Sunday, 10th, at 7 o'clock A.M., we were hurried from our berths to go out and look at the wonderful gorge—the Royal Gorge, in the Rocky Mountains—and where the photograph fiend was waiting to take our pictures. It was very cold, and I refused to go out where the others were standing in the snow and ice until I had had my breakfast; so while the others were waiting for the photographer to arrange his camera, quietly took my breakfast, and then thought I would look out from the platform of the rear car, when I met Mrs. Leslie coming in, who insisted upon my donning her sealskin coat, so I stepped out on the track just in time to get into the picture and to have mine one of the most distinct in the group. I wish the photograph gave one an idea of the stupendous height and narrowness of that gorge. One cannot but wonder at the ingenuity of the engineer who planned a railway there. Soon we were again on our way, reaching Leadville at noon, when we immediately jumped into sleighs, sleds, and other queer-looking vehicles, and were rapidly driven round the town, which consists of a few streets, with very nice-looking stores, a school-house, and but one church that I remember. After a stay of about twenty minutes we were on the way to Glenwood Springs, reaching there just after dark amid a blinding snow-storm, but that did not prevent our taking a sleigh-ride of about a quarter of a mile to the baths, where we found a luxurious hotel, with beautiful fires burning in the reception rooms, which made it a most inviting place to go from the severe storm. Passing through the broad hall to the other side of the house, we saw a steaming pool of water, about 25 x 25 feet, where the gentlemen of the party, after donning bathing clothes, plunged in for a warm bath out-of-doors, while some of us went up-stairs on the balcony, and holding umbrellas to protect us from the snow, threw snowballs down at the bathers. Bathing on a cold winter's night, in a pool of warm water, in a snow-storm, amid the glare of the electric light over it all! As I think of it now it seems to me like a dream. Some of the ladies bathed in baths provided for them inside the hotel, and that reminds me of a little fun we had when some boys or young men ran alongside of our sleigh and asked to have Nellie Bly pointed out. Bly was not of the party, but one of the ladies was designated as N. B. So the boys shook hands with her, and soon the word was passed that she was of the party, and when we got inside the hotel a crowd surrounded her, and when she took her bath the best of everything was given her, and every one wanted to wait upon her, so that she was overwhelmed with attention. I do not know how the hotel people felt when Miss Kate Field told them just before she left that Nellie Bly was not in the party. The hot water comes bubbling up at a temperature of 120 deg., but for the bathing pool it is tempered to 92 deg. We also visited, at the side of the house, the Champagne Spring, which has a handsome stone basin around it, and looks exactly like champagne, but tastes very salt and pungent, with the odor of sulphur. After remaining there about one hour and a half we again got into the sleighs and were driven back to the train, it still snowing so hard I could not keep my eyes open. Several of us assembled in Madame Charlouis' state-room, and there Mr. Pearsall sang, with his beautiful voice, "Flee as a Bird," and several other hymns, after which we all retired.

Monday, Jan. 11th, at ten o'clock we are in Salt Lake City. Were met by a delegation from the city with carriages and were taken to the Knutsford Hotel, which is handsomely decorated with evergreens and the word "Welcome" conspicuous upon the rotunda walls. It has a bonny look to us, so far from home and in that strange city, which we have only read of.

After partaking of a luncheon, we were driven through the city, and I was at once struck with the beauty of the streets, which are 180 feet wide, with beautiful trees either side, and all running parallel with the points of the compass. We saw Brigham Young's numerous houses, all enclosed within a high stone and mortar fence, with the exception of one very large handsome mansion, which was built for his favorite wife, Amelia, who we were told has married again. Near this house is Brigham's grave within an iron fence with only a small marble slab to mark it. Within the same enclosure are buried several of his wives. We were then driven to the Tabernacle, which was one of the greatest, if not the greatest wonder we saw during our trip. Its monstrous self-supporting dome, with its wonderful acoustic property, was tested for us by the dropping of a pin, which was distinctly heard at the further end of the building. Then they have the second largest organ in the world, the largest being in St. Peter's, at Rome. Patti once sang in the Temple, and finding it insufficiently warm gave the heating apparatus which is now used. I wish I could remember the seating capacity of this wonderful building. Then on to the old Tithing house. The city is beautiful and surrounded by health resorts. The warm springs, the hot springs, both medicated, potent in healing virtues, and the charming drives which may be enjoyed all times of the year. The sun shines nearly every day, and we were told there never is fog or malaria to encounter. It appeared to me a charming place to make a home. The city is lighted by electricity, and the trolley cars run through the streets. We were returned to the hotel at one o'clock, partook of some lunch, and afterwards some of the party were taken by steam cars to Salt Lake. I was too tired to accompany them, so took the time to rest and write a few letters. At seven o'clock we went to the Tabernacle and there heard the choir of 400 voices accompanied by the organ, and the music was glorious beyond description. Then there were one or two speeches. Mr. M. P. Wilder told some of his funny stories and was encored vociferously. He has since made the proud statement that he is the only humorist ever allowed in the pulpit of the Tabernacle.

Mr. Pearsall told a story instead of giving the song we hoped to hear. We wanted to hear his fine voice tested in that spacious building, but I believe a cold prevented his singing. The organ played "Home sweet Home," and we left to go back to the hotel, where a banquet was held. Speeches were made by many of the natives and a few of the delegates. Miss Elita Otis recited. We bade farewell to Salt Lake City at twelve o'clock and took the train to continue our journey. We met at the hotel a Mrs. Young, who is the granddaughter of Brigham Young, married to B. Y's son and since separated from him, and is connected with one of the papers. She is with us now, a guest on the train, and is going to New York. We travel all day on the 12th without stop. In the evening we assembled in our dining car and there a paper was read by Mr. Coates. Some were called upon to make a speech. Mrs. Upham recited, Mr. Pearsall sang, and we all sang together, and it was a most jolly, enjoyable evening, but it sent us to our berths very late.

On the 13th we arrived at Auburn (in California), sweet Auburn, at seven o'clock in the morning, there to find that we had suddenly jumped right into spring. The depot was festooned with flowers and decorated with oranges. The word "Welcome" stood boldly out, made of the beautiful yellow fruit, and an immense bell of oranges hung in the entrance way. We got into carriages and were driven to a hotel where we breakfasted. And how can I describe the loveliness of the tables. The centres were a huge mass of flowers and fruits, where immense bunches of grapes predominated. At each plate was a dainty bunch of flowers. Speeches were made, and after being so refreshed we attended the Citrus Fair, where it seemed to me that all the oranges in California were displayed in one way and another; there was an enormous cornucopia about ten feet long composed of that fruit, and from its spacious mouth came pouring forth all the fruit products of California. And such fruit! Their beautiful olive trees. I there learned that that fruit is pickled while it is still green, and the ripe olives, which are black, are only used for the oil. We left this fair of wonderful fruits to continue our ride through the town and to visit Col. Hamilton's residence on the heights. He told me his home was in Sacramento and it was here he came to spend his Sundays. A beautiful little lodge, exquisitely fitted up and surrounded with beautiful flowers and tropical shrubbery, and overlooking a picturesque valley of surpassing loveliness, where the mercury is never above or below 65°. After leaving this spot we went to the depot, and, while waiting for the whole party to assemble, some one brought among the crowd a lovely basket of violets, and as the young lady carrying them passed by there was the sweet fragrance of those lovely flowers. I watched her with envious eyes until I saw her present them to Mrs. Frank Leslie. Well, we cannot all be famous women, and those who have worked for the laurels certainly deserve them, but I did want those violets.

Finally we reach Oakland and there take the ferry to San Francisco; we were immediately driven to the Baldwin Hotel, assigned to our rooms, which were very handsome and commodious in every way, and on my bureau was a magnificent vase of flowers which rested and pleased me more than I can tell, for I never yet had too many flowers. We dined, and in the evening my sister and her son and daughter spent the evening with us, and it was one of the happiest I enjoyed while away.

On Thursday, Jan. 14th, we were driven through Golden Gate Park to Sutro Heights, where for the first time we viewed the Pacific Ocean. Sutro Heights is a most unique place, laid out with fine tropical plants, driveways, lawns, and at its highest point an expansive plaza overlooking the ocean, and there we stood for a long time, fascinated by the seals as they disported themselves on Seal Rock, which lies about sixty feet from the shore, and which is always the home of the seal—a hundred or more of them were either sunning themselves, slipping off into the water, or trying to stand upon their tails for the amusement of our party. There was much to interest at this park; everywhere we looked we saw statuary, from the goddess to the evil one, from the grotesque to the sublime, all and every imaginable piece of sculpture was represented. I question the taste of so much of this decoration—however, the most delicious lunch, provided by Mr. Sutro, overcame any objections we might have had to the grounds—the exquisite floral decorations, and the charm of, on the 14th of January, dining out of doors under an awning, to protect us from the scorching rays of the sun, looking out upon the peaceful ocean; the happiness of being in such a charming place, surrounded by the intellect and the wit of America, I may say, what more could one wish for? Before we left the tables speeches were made by Mr. Welshon, of Pittsburg; Mr. W. Wilde, and a beautiful charming bit of eloquence by Mr. Seaver Page, of New York City. We then shook the hand of our good host, and got into our carriages, and drove home by way of the Presidio.

Jan. 15th, Friday.—Spent the day with my sister; after doing a little shopping, and taking lunch at a restaurant, went to Oakland and visited Macomb's family, saw Sallie and Barculo, Lulu and little Frank; returned to San Francisco, and after resting a while got ready with my sister to attend the ladies' reception at the Palace Hotel; met Mrs. De Young, Mrs .F. E. Wait, Mrs. Creighton, Mrs. Black (Annie Laurie), and other ladies, among them Miss ———, the World's Fair sculptress. The room was beautifully draped, and decorated with smilax and evergreens, and a handsome luncheon was provided—the music exquisite—and altogether it was delightful. We came home, dined, and attended with my sister the convention at the Opera House, where speeches were made by Misses Coats, Keenan, and others; Miss Otis recited, Messrs. Leslie read a paper regarding her journalistic success, and was handsomely dressed in white silk and black lace, with a wealth of diamonds. Mr. Wilder made us laugh with his fun. Miss Kate Field told us all about "Kate Field's Washington," and when we left the Opera House, at 11 o'clock, we all went to China Town to see the quintescence of all that is horribly foul and revolting in the way of living. How human beings can survive such filth and choking odors and wretchedness, living underground, is more than I can conjecture. I have come to the conclusion that the heathen Chinee is not always human. I have seen the Mohave Indian of the lowest type, but they live better lives than these creatures, for the Indian has at least plenty of fresh air. We did not get back to the hotel until after 1 o'clock, and then I had to pack my trunk, as we took the train on the morning of the 16th for Monterey, stopping on our way at Menlo Park, Senator Stanford's stock farm, and then for our benefit the splendid horses were brought out, notably one splendid animal, Palo Alto—this horse has made a wonderful record—there were others—many others that appeared equally attractive to me, but that one creature received the most attention, all the photograph snap-shots were aimed at him; such is fame. Then we drove on to the Leland Stanford, Jr., University, one of the most spacious, beautiful colleges in America, built of stone, and situated in a lovely valley. The grounds are handsomely laid out, and in every way it is grand and imposing, and in one of the class-rooms is a life-size portrait of the beautiful boy to whose memory the structure is there. Resuming our journey in the cars we found ourselves in Monterey at 1 o'clock. After lunch at the Hotel del Monte we took an eighteen-mile drive to Cypress Point, first through an avenue of splendid tall pines, passed the baths, and on to old Monterey, where we saw buildings that were very old and picturesque—the old custom house, the Carmel Mission, which has been somewhat repaired; and driving on to the beach we saw the strange looking trees called cypress, but not like any tree seen elsewhere. I was told that at this point was the only place in the world where they grew; they have a weird look, with their very dark, sprawling branches and their naked trunks. Then we come to Cypress Point, which is a huge rock, and rocks beyond, where the waves come dashing up with great force, and further on come to more seals disporting themselves upon the rocks, and here we make a turn again towards Hotel del Monte, and riding on pass a small Chinese settlement, then we get inland among the queer trees and again on the beach, and after a while we are back at the hotel, and I make a rush for my room. For, though it has been the grandest, most picturesque ride I have ever taken, there were times during the drive when I could not possibly keep my eyes open, so overcome was I for the want of sleep. I had had but fours hours of sleep during the last thirty-six hours, and I felt myself excusable for being so drowsy when I heard many others complain in the same way, and it was the general desire of the party that we might be allowed to remain in that charming spot just through one day, that we might rest, but the plans could not be changed. I, however, felt all right, as did the others, after a sleep and a bath, to enjoy the banquet and in the evening a ball.

Sunday morning, January 17th, we took the train for Santa Cruz, drove out to some bridge; the most interesting portion of that drive to me being a delicious little lunch, served when we got to the beach, for I was very hungry—we also were given some beautiful roses, and that is all I remember of that drive. I do not remember anything about the bridge—I wanted more sleep. We then took the train, and in a short time came to a spot where we got out to look at the famous Redwood trees—they were the big trees one reads so much about, and a home could be made inside the trunk of one, and indeed thirty people could stand inside, and through one of them a horse and wagon could easily drive—these grounds were used for picnics—then getting into the car again we proceeded to San Jose and took lunch at the Hotel Vendome, where we remained all night. Instead of taking the drive through the town in the afternoon, I took the long-wished-for sleep, and was ready for the banquet in the evening, and early the next morning my husband and I started back with a few of the others of our party to San Francisco, where we arrived about 10.30.

19th January met Maggie, and, after doing a little shopping and taking lunch went to 719½ Bush Street to tell Gertrude to get ready to go with me to a ladies' reception at Pleasanton Hotel, we went to Oakland. In the evening Gertrude and I went in the carriage with Mrs. Martin and Mrs. Upham to Pleasanton Hotel, where we had a delightful evening, returning home with Mr. Wilde and Mrs. Leslie. At the reception Mrs. Upham and Mrs. Avery made speeches, which I could not hear as the crowd was so great. On arriving at the hotel Mr. Hand met Gertrude and took her home. Our trip to Monterey was made much more interesting and delightful by our friend, Mr. Haraszthy, who accompanied us, and pointed out every point of interest along the road—particularly was I interested in the vineyards, acres and acres of them—some planted in the valleys, others on the very summits and the sides of the hills; those grapes grown on the very highest hills making the best flavored wine, for the reason that the drainage from the hills seemed to affect the fruit.

Tuesday, January 19th.—After breakfasting and waiting a while for Gertrude, who did not make her appearance, Mr. Haraszthy drove us, Madame Charlouis, Mrs. Worrell and me, all over the city, through the business portion, and then past the mansions of San Francisco's millionaires—all very large and handsome, and built of wood, with the exception of the Flood mansion, which is of brown stone. This struck me as being very strange. Drove to the Presidio, where I called upon Mrs. Graham, and then back to the hotel after our very pleasant ride. After lunch went with Mrs. Leslie and Mrs. Martin to a Chinese store, where I made a few purchases, and, leaving my friends, went to spend the rest of the afternoon with Maggie and her family at 719½ Bush Street, and found Gertrude quite sick, lying on the lounge, which accounted for her not coming to take the drive with me in the morning. At five o'clock we all started out, and on the corner, when we were waiting to take the car, we met Macomb and my husband—then we parted, and bade good-bye to my dear sister, and we went to the hotel; had dinner, and afterwards attended a reception at Mr. De Young's beautiful mansion, which was very enjoyable—met Judge and Mrs. Evans, Mrs. Creighton, and many others—returned to the hotel to pack our trunks, and then after but four hours' sleep we were aroused to be hurried off to the train that was to take us to Los Angeles. Mr. Haraszthy called before I left for the train.

January 20th.—At 10 o'clock the party boarded the special Wagner train and left San Francisco. Now for Sacramento, where we arrived early in the afternoon and were taken to a club house, where we partook of a delightful repast. Each lady and gentleman was presented with a bunch of flowers, speeches were made, and after, as we were preparing to take carriages for a drive round the city, one of the delegates (Mr. Phelps) asked me if I would chaperone two young ladies, to whom he had been introduced on the drive. I readily consented, for they were two of the most charming girls I have ever met, and both were very handsome. Attended formal reception at the Capitol; more speeches were made, to which I did not listen, as my young companions were more interesting. From there we took carriages, this time a four-seated wagon, for more than one of the young gentlemen had suddenly made up his mind that ours was the vehicle he intended to ride in. We visited the million-dollar Crocker Art Gallery, and when we arrived at the train it was quite dark. Sacramento is a very pretty place, with pleasant-looking homes, one of which we were so fortunate as to see the inside of. Miss Lindley invited the party in our conveyance to stop for a short call, which was charming. She gave us a delicious drink of orange cider, and after a little pleasant chatting we felt that our time was drawing to a close and that we must proceed. That call was a very pleasant episode connected with Sacramento. I could not appreciate the Art Gallery, at least not to the extent of a million dollars; but the beautiful girls charmed me, they were so sweet and refined, and if they did not enjoy us the little while we were there I am mistaken. I hope I may meet them again—Miss Bennet and Miss Delia McGahan. On Thursday, January 21st, we breakfasted upon the train, and shortly after arrived at Fresno, where all the party took carriages for a drive. I remained on board the cars, for I was tired and preferred to rest. I, however, joined them when they went to the Hughes House for lunch. More speeches were made, and afterwards a reception at the Opera House, which I did not attend. January 22d.—Reached Pasadena early in the morning, and were driven about through the lovely place, where the streets are broad and smooth, bordered either side by beautiful palms, evergreens, and that most graceful tree, the pepper tree, which looks something like a weeping willow, but finer, as though the leaves were green lace. The Raymond House is beautifully situated, overlooking the town and the San Joaquin Valley. The whole place has a rich, comfortable look, and I would like to have a winter home there. At noon we went on to Los Angeles and were driven directly to Judge Silent's home, which is very handsome, and lies in a bower of magnificent tropical shrubbery and orange trees. The whole party had lunch on the lawn. Miss Fremont, the daughter of General Fremont, assisted Mrs. Silent in receiving. I was desirous of calling upon my friend, Mrs. Elderkin, who I knew was living somewhere in Los Angeles, so I inquired of Mrs. Silent where she lived, and was delighted to find her home was the very next house. My call there was delightful, as Mrs. E. was glad to see me and to hear from old friends. I could not remain so long as I wanted to, as others were waiting in the carriage. Her home is beautiful, with a grove of orange trees nearly surrounding it. Then a more extensive ride about the town, and then for the train at four o'clock. We reached Redondo Beach Hotel just before sunset. It is situated on a jut of land reaching out into the ocean; it is very handsome, and the rooms were filled with flowers; roses measuring eighteen and twenty inches round, and smilax in quantities everywhere, and when we went into the dining-room the tables were beautiful beyond description with flowers, and soft music was played while we partook of a regal repast. Speeches were made, and at 10 P. M. we again were glad to get into our Wagner home, where everything was always sweet and comfortable.

(*Concluded next week.*)

SOUTHERN IRON.—The output of iron in the Southern States for 1891 was about 1,912,000 tons.

INQUISITIVE SEALS—Noonday Rock is a pinnacle projecting from the bed of the Pacific off the coast of California. It lies three miles to the westward of North Farallon Island, and is directly in the path of vessels bound to or from the harbor of San Francisco. In order to warn vessels of their proximity to this hidden danger, the lighthouse establishment keeps a bell-buoy over the rock. Sometimes the buoy breaks adrift. There is then great difficulty in finding the rock, on account of its small area and great distance from shore. In order to locate it exactly advantage is taken of its being a great feeding-place for seals. When the lighthouse tender is near the spot the steam whistle is blown. The seals rise perpendicularly to the surface of the water, sticking their heads high into the air to find out what the extraordinary noise means. With the surf-boat already lowered, a trial can-buoy can be thrown almost exactly on the rock, thus saving hours of tiresome search.

OLIVE OIL.

THE PROCESS OF ITS MANUFACTURE.

The gathering of the olive is, as far as possible, done by hand, and the greatest care must be taken to pick only the dead-ripe olives, and to avoid breaking the bearing twigs which will produce the next year's crop. Coarse sheets are sometimes spread under the trees, and the fruit gently shaken off, so that only the perfectly light portion falls. It is then looked over, cleared of accidental admixture and inferior berries, and taken to the mills as soon as possible. The peasants often pretend that keeping the fruit till it ferments facilitates pressing and gives a larger yield. This is, however, only an excuse for delay, and any supposed advantage is more than counterbalanced by a deterioration of quality. The simplest and most primitive mill was one in which one or two large millstones travelled edgewise over a bed of hard stone. Oxen or horses attached to a strong radial axis furnished the power. In this way the fruit was reduced, stones and all, to a slimy paste. But more perfect and complete machinery of modern design has superseded the old picturesque oil mill, which, as far as France is concerned, is now only to be found in remote villages. Besides, changes in the arrangements of the industry have tended to do away with the old cumbrous mill. It is now very unusual for a farmer or olive grower to press his own crops. In all centres of olive culture there are sure to be one or more professional oil pressers, who have embarked considerable capital in the requisite plant. Of these there are two classes. First, there are those who simply crush and press for the farmer who brings his crop to them, and who are paid in kind by retaining a percentage of the produce as agreed upon. Then there are others who may be called merchant crushers. These buy up olives from the growers and dealers, manufacture the oil, and sell it themselves. Several large firms in Marseilles possess branch mills in different centres of olive culture, and in Algeria and Tunis, working upon a large scale, and their produce is as well known by its trade as are special wines. The system of the lower grade of oil crushers is obviously liable to abuses which are difficult to suppress, and the peasant frequently finds, when his oil is returned to him, it is very far below the calculation he had made of the probable yield of his crop. The crushed fruit is distributed into short, squat sacks, made of esparto and horse-hair, holding about 15 lbs. each. The mouths of these scourtins, as they are called, are indrawn, as if half closed. Consequently, when ten or twelve of them are piled one above the other, on the bed-plate of the press the bottom of one bag rests on the mouth of the next below and perfectly closes it. When the pile is set true the press is worked very slowly and gradually. The oil oozes from all sides of the scourtins, and trickles from the delivery groove of the bed-plate into a receiver. The first pressing is *huile vierge*—virgin oil—and has a delicate greenish color, and a peculiar nutty flavor. Cleanliness in the crushing mill and press is an essential. Everything about the oil must be scrupulously clean, so that no color or stale and rancid flavor be communicated to it. When the oil ceases to flow, the bags are taken out, and their hard, apparently dry contents broken up. The mass is mixed with boiling water and steamed. A second time it is pressed, precisely as before, and the mixture of oil and water that comes away is allowed to stand till the oil has cleared and risen to the top. It is then siphoned off as a second quality oil. The marc, or residue, is either sold as oil cake, for stock feeding or manure, or is treated by quite another class of manufacturers, who get from it a third quality of oil, suitable only for soap making, by treating it with chemicals, chiefly bisulphide of carbon. The processes up to this point do not admit of any variety, but the skill of different firms is supposed to be shown in clarifying and refining. The product of the presses is kept in immense tanks or in jars, till a sediment has deposited itself, when the clear oil is separated and filtered through specially prepared papers, through cotton, or other ways fancied to be trade secrets. It will be clear then that olive growing and oil pressing are two distinct trades, and that they are best kept separate. Unless a grower had a large capital at command to work a mill, and kept a staff of skilled hands, he would never be able to attend to the digging, pruning and fertilizing of his olive trees, more particularly as this has to be done just at the same time of the year as the all-important first pressing. The grower has plenty to do, if he attends to his work properly. Left to itself the olive tree certainly produces some fruit, but one well cultivated repays its owner tenfold. An outlay of about £10 an acre is considered a sound investment. A full grown Pendoulier well cared for will give about thirty gallon measures of olives for its crop; the Cayon, under similar circumstances, may give an average of seven or eight gallons. The output of oil is about fourteen per cent. for the two pressings.

DOMESTIC DIETETICS.

SPECIALLY PREPARED, FROM PRACTICAL TESTS, FOR THE LADY READERS OF THE "AMERICAN ANALYST."

SEASONABLE FOOD.

February.

MEATS.—Beef, mutton, ham, kidneys, liver, venison, sausage, pork.

GAME AND POULTRY.—Grouse, hare, pigeon, chicken, duck, turkey, geese.

FISH.—Bass, cod, crabs, eels, carp, catfish, flounder, halibut, herring, lobster, mackerel, mussels, oysters, perch, pike, rock-fish, salmon, smelt, whitefish.

VEGETABLES.—Artichokes, beets, beans, cabbage, carrots, celery, garlic, lettuce, onions, parsley, parsnips, potatoes, shallots, spinach, squash, tomatoes, turnips.

FRUIT.—Apples, bananas, grapes, oranges.

PRACTICAL RECIPES.

MRS. H'S POTATO SOUP.—Put three pints of milk to boil. Have three good sized potatoes boiled, and while hot mash them fine, and season with butter, pepper and celery salt. Add a little of the hot milk to the potatoes, making it into a smooth paste. Then mix it with the boiling milk, and allow it to cook for a moment. Heat your tureen and put into it the yolk of an egg, well beaten, and then immediately strain upon it the soup, stirring quickly. Stir in gently the well-whipped white of the egg and a few spoonfuls of powdered cracker crumbs, and serve at once.

CHICKEN COOKED WITH SHERRY.—Cover a fine chicken of three or four pounds with cold water, and let it simmer in a closed pot until perfectly tender, then let it get cold and cut the meat into dice. Put the broth in which the chicken was cooked over the fire again, adding to it a bunch of sweet herbs, a few sprigs of parsley, a slice of lemon, a few mushrooms, and a small piece of onion. Cover the pot closely, and cook for ten or fifteen minutes. Cream together a little butter and flour and add to it the broth, then add a cup of cream and then the chicken. Take out the sweet herbs and lemon, and add the hard-boiled yolks of three eggs, crumbled fine; lastly, flavor with sherry wine to taste; pour into a deep platter, and serve at once.

COCOANUT LAYER CAKE.—Two cupfuls flour, one cupful powdered sugar, two tablespoonfuls butter, one-half cup milk, two eggs, two heaping teaspoonfuls baking powder, sifted with the flour. Bake in three layers. Beat to a froth the whites of two eggs, add a cupful of powdered sugar and a scant half box of prepared cocoanut; grate in a little lemon or orange peel. Spread the cake layers with this, and pile them on top of each other.

COOKIES.—One cupful granulated sugar, one-half cup butter, one-half cup milk, one egg, one-half teaspoon of soda dissolved in a little milk, half a nutmeg, and just enough flour to roll out.

MRS. B.'S BOSTON BROWN BREAD.—One cupful flour, one cupful corn meal, one cupful Graham flour, scant cupful of molasses, teaspoonful of salt, teaspoonful of soda; moisten with milk into a stiff batter and steam three hours.

MILK ICING.—Two tablespoonfuls of milk, thickened with powdered sugar; flavor with vanilla and spread on the cake.

SALAD DRESSING WITH BUTTER.—One-half cup melted butter, one-half cup vinegar, yolks of two eggs, beaten, one teaspoonful mustard, one teaspoonful salt, one teaspoonful sugar. Add the mustard, salt and sugar to the yolks, then the vinegar and butter, and let them all steam over a kettle of water for five minutes; then add the whites of the eggs, beaten to a stiff froth.

MOSAICS.

HOW THE BRILLIANT PICTURES ARE MADE.

One of the few industries of Rome is the manufacture of mosaics, the largest establishment being under the control of the Church, and employed almost entirely in the adornment of churches and religious establishments. The process of making a picture in mosaic is very slow, and requires the highest order of skill. To begin with, mosaic is made of glass, and its value consists in its being indestructible. The workmen in great pictures have to use something over 26,000 shades of colored glass to produce the tints requisite, as in a mosaic every color is necessary, just as in an oil painting. To make a picture, the process is this: A plate of metal of the required size is surrounded by a raised margin an inch in height. A mastic cement of powdered stone, lime and linseed oil is spread over the bottom of the plate, and that is covered up with plaster of Paris to the level of the rim. Upon this the picture to be made is very carefully drawn, and the mechanic's work begins. He takes a piece of glass of the exact tint necessary and fits it into its place, grinding to the shape. Then he goes on, one piece at a time, till the picture is finished; then the face is ground down to smoothness, and the picture is set in its place. Some of the greatest pictures of ancient and modern times are in mosaic, the tints, with all the delicate shades, being carefully reproduced as in oil, and the effect being finer. The ceilings of many of the great churches of Rome are entirely of mosaic, as well as many of the altar-pieces and other decorations. As they are entirely indestructible, and never lose their color, they are very much prized. A picture in mosaic costs a great deal, but then it is eternal, barring fire and earthquakes. All over Rome there are small shops devoted to the manufacture of mosaic table tops, box covers, etc., the workman toiling all his life on one subject. The man who begins on St. Peter's or the Coliseum never does any other subject, and he becomes so skilful in this one that he is enabled to execute it not only well, but cheaply. He has only the tints to manage that enter into one picture, and he places them mechanically and very rapidly.

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LONGEVITY OF BIRDS.—It is a well known fact that birds enjoy much longer terms of life than do mammals. Hesiod and Pliny both tell us of rooks that lived to the patriarchal age of 700 years, and that the average life of a raven was 240 years. How far this was correct we cannot determine. It is well known that they outlive man. While swans have been known to live 200 years, chaffinches and nightingales have been kept in confinement for forty years. Girardin tells us that he had a heron for fifty-two years, and that he knew of two storks that built their nests in the same place for forty years.

Silver Plate.—Silver articles are called plate from the Spanish word, plata, which means silver.

Average Rainfall.—The average annual rainfall in the United States is 29.6 in., the variations ranging from 0 to about 125 in.

On the Fly.—Photographs of speech, or rather of the fleeting expressions and movements of the human countenance during speech, is the latest of the many triumphs of the instantaneous process.

Pencil Marks.—Pencil tracings cannot be affected by acids. There is no solution or agent known to science which can dissolve pine carbon or its equivalent, plumbago, of which lead pencils are composed.

Steam Power.—It has been estimated that the motive power furnished by the steam engines of the world represents the strength of 1,000 millions of men—that is to say, twice as many as there are workmen.

Life Savers.—A recent invention is a buoyant life-saving seat for ships. It is intended for a deck seat, the upper and lower parts being made of buoyant material, so that, if thrown into water, the apparatus will support several persons comfortably.

Cocoanut Butter.—This comparatively new product was first said to be prepared from the milk of the cocoanuts, but as a matter of fact it is produced from the cocoanut oil, by treatment with alcohol and animal charcoal, which removes the rancid flavor and makes the butter white.

Germicidal.—According to Dr. H. A. Kelly, permanganate of potassium and oxalic acid are harmless to the hands and are germicidal. Soap and water plus the permanganate of potassium and oxalic acid are the only true germicides, and the best disinfectants we possess to-day.

One End Safe.—Where the service required is not important enough to warrant the employment of an experienced engineer, we should advise the employer to get a mule, which is only dangerous at one end, while a steam boiler may be said to have a hundred heels and each one loaded.—*The Safety Valve.*

Marble Engine.—Mr. George L. Sevey, an ingenious marble cutter of West Somerville, Mass., has made a small operating engine composed of marble. It has a vertical piston and two side fly-wheels. The height is 23 inches and it is 10 by 20 inches square. There are one hundred pieces of marble, held together by twelve brass screws. The engine is operated by air pressure.

Shoe Buckles.—One of the great manufacturing industries of Warwickshire and Staffordshire, England, during the last century, was the manufacture of buckles, a large percentage of which were used on shoes, all gentlemen of any importance sporting upon the tops of their shoes great buckles of silver plate, which now would probably at first appear ridiculous and ungainly.

Freckles.—Some people are born freckled and others have freckles thrust upon them. The former class might as well accept their freckles as a dispensation of Providence, for nothing can be done for them. The latter, it is said, can always get rid of their affliction by using a couple of drachms of sal ammoniac with an ounce of German cologne, the solution mixed with a pint of distilled water. Applied two or three times a day, states one of our contemporaries, it will cure the worst case of acquired freckles on record.

Railway Mortality.—According to the report of the statistician of the Interstate Commerce Commission, the total number of persons reported killed on the railroads of the United States during the year ending June 30, 1890, was 6,334, of whom 2,451 were employes, 286 were passengers, and 3,597 were classed as "other persons," the last class including suicides. The total number reported injured was 29,025, of whom 22,394 were employes, 2,425 were passengers, and 4,206 were unclassified. During the year 369 employes were killed and 7,842 injured in coupling and uncoupling cars. There can be no doubt that a large proportion of these fatalities and injuries would not have occurred if automatic couplers had been in universal use.

BUSINESS NOTES.

LAND-SEEKERS.

It will be of interest to those contemplating settling in the Northwest, to know that the choicest farming and timber lands in Wisconsin are tributary to the Wisconsin Central Lines. Settlers on these lands have all the advantages of healthful climate, good market facilities, abundance of fuel and building material, pure and sparkling drinking water, and other important benefits which cannot be enjoyed on the prairies of the West. No droughts, no cyclones, no grasshopper plague and no fever and ague. Now is the time to select choice lands at low prices. Wisconsin is considered one of the most prosperous States in the union. Located directly on the Wisconsin Central Lines in this State are the thriving cities of Burlington, Waukesha, Fond du Lac, Oshkosh, Neenah, Menasha, Waupaca, Stevens Point, Marshfield, Chippewa Falls, Eau Claire, New Richmond and Ashland. For tickets, time tables, maps and full information, apply to G. R. Fitch, D. P. A., Wis. Central, New York, or to Jas. C. Pond, General Passenger and Ticket Agent, Chicago, Ill.

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HOW'S THIS?

We offer One Hundred Dollars Reward for any case of Catarrh that cannot be cured by Hall's Catarrh Cure.

F. J. CHENEY & CO., Props., Toledo, O.

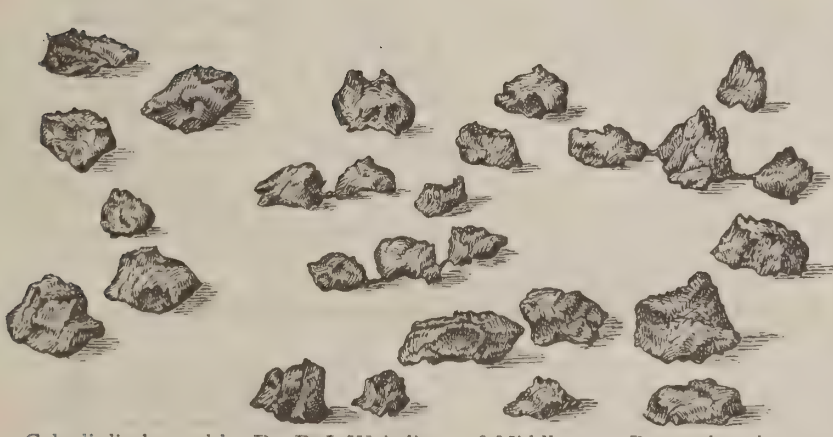
We, the undersigned, have known F. J. Cheney for the last 15 years, and believe him perfectly honorable in all business transactions and financially able to carry out any obligations made by their firm.

West & Truax, Wholesale Druggists, Toledo, O., Walding, Kinnan & Marvin, Wholesale Druggists, Toledo, Ohio.

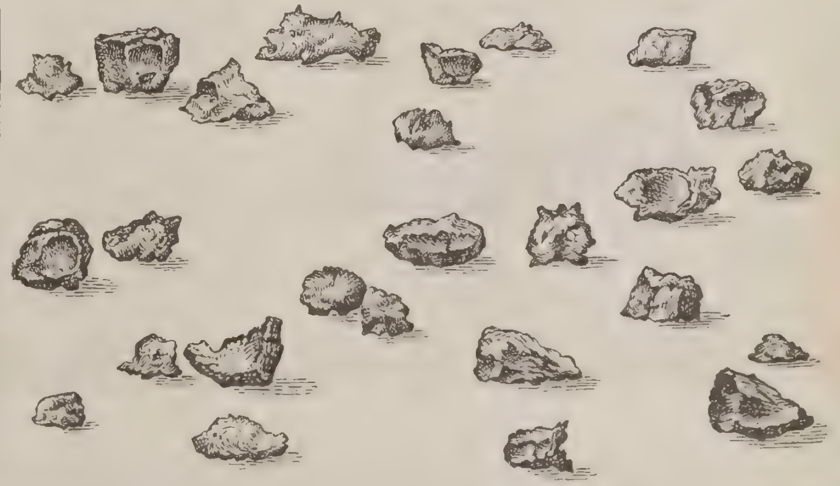
Hall's Catarrh Cure is taken internally, acting directly upon the blood and mucous surfaces of the system. Price 75c. per bottle. Sold by all Druggists. Testimonials free.

BUFFALO LITHIA WATER,

FOR URIC ACID DIATHESIS, STONE IN BLADDER, Etc.



Calculi discharged by Dr. B. J. Weistling, of Middletown, Pa., under the use of the water. They are of the Uric Acid and Phosphate variety, resembling hempseeds, laminated, flattened, oval, smooth and fawn colored.



Calculi discharged by R. L. Roys, Meriden, Conn., under the use of these waters. These are of the Uric Acid and Oxalate of Lime variety. Dark brown, hard, studded with tubercles.

WATER IN CASES OF ONE DOZEN HALF GALLON BOTTLES, $5.00, F. O. B. HERE.

☞ **For Sale by all first-class Druggists, and Pamphlet sent to any address.**

THOMAS F. GOODE, Proprietor,

BUFFALO, LITHIA SPRINGS, VA.

☞ Please mention the American Analyst.

MINT CURE.—A doctor recommends menthol as a preventative of the grip, and the drug, it may be observed, is greatly in vogue nowadays for many kinds of ailments. It is the concentrated essence of the humble peppermint, and in the form of a pencil, or in an alcohol solution of from 20 to 40 per cent., it is extremely efficacious as an application in neuralgia, toothache and colds in the head.—*World.*

CANADA BEET SUGAR.—Following the example of the United States the Canadian Government has passed a law offering a bounty of one cent per pound on all beet root sugar produced in the Dominion between July 1, 1891, and July 1, 1893, with an additional bounty of three and one-third cents per one hundred pounds for each degree, or fraction of degree, over seventy degrees polariscope test.

PROPOSED COLUMBIAN TOWER.—We have received from Charles Baillargé, C. E., one of the competing architects for the London tower, a communication favoring the idea of a gigantic globe for a monument instead of the servile imitation of the Eiffel tower. By inclining the axis so as to lie in parallelism with that of the earth the visitor would, at the highest point, emerge out at Chicago, and see near him the models of Columbus' galleys approaching the unknown coast. He proposes that the interior should represent the firmament, with incandescent lamps of varying power representing the stars.—*Scientific American.*

THE MEAT DIET.—The attention of the French Society for the Advancement of Science has recently been directed by certain physicians to the evil effects of an excessive meat diet, or of raw, overkept or bad meat. The ptomaines thus produced introduce poisonous principles in the system, which the kidneys cannot throw off. Inhabitants of cities indulge far too freely in meat, often badly cooked and kept too long; the poor and country population do not often get their meat fresh. Professor Verneuil considers something should be done to remedy this state of things. He points out that Reclus, the French geographer, has proved that cancer is most frequent among those branches of the human race where carnivorous habits prevail.

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MOVING UP-STAIRS.—A manufacturing concern in Bridgeport, Conn., requiring an extension of its iron foundry, resorted to the unusual plan of placing the entire foundry on the second floor of its shops. The floor was constructed of brick arches on heavy iron joists, supported by stout iron columns, and a ten ton cupola, with all its appurtenances, was placed on this solid foundation. Castings weighing eight to ten tons have been made in this foundry without difficulty.—*Manufacturers' Gazette.*

MILDER WINTERS.—A reverse of seasons is supposed to take place upon this earth once in every 10,500 years, due to the varying inclination of the earth's axis. About 1,500 years ago we entered the epoch of a more genial winter temperature, and if nothing happens to prevent, we may expect a gradual softening of our winter climate during the next nine thousand years, when another glacial epoch will begin. What sort of a country will this be in the year 11,500? Will it resemble Egypt, with remains of great buildings buried, or sticking up out of the sand, and known to be more than 4,000 years old?

THE DEADLY COLD BED.—If trustworthy statistics could be had of the number of persons who die every year or become permanently diseased from sleeping in damp or cold beds, they would probably be astonishing and appalling. It is a peril that constantly besets traveling men, and if they are wise they will invariably insist on having their beds aired and dried, even at the risk of causing much trouble to their landlords. But, according to *Good House-keeping*, it is a peril that resides also in the home, and the cold "spare room" has slain its thousands of hapless guests, and will go on with its slaughter till people learn wisdom. Not only the guest, but the family often suffer the penalty of sleeping in cold rooms and chilling their bodies, at a time when they need all their bodily heat, by getting between cold sheets. Even in warm summer weather a cold, damp bed will get in its deadly work. It is a needless peril, and the neglect to provide dry rooms and beds has in it the elements of murder and suicide.

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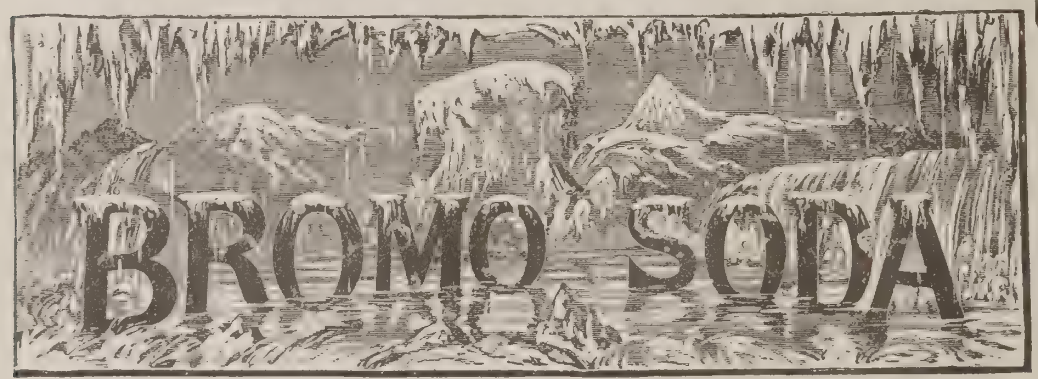

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CONTENTS.

Atlantic to Pacific 98
Bright Stories
  Lady Mary's Bill 100
Columbian Exposition 102
Diamonds in Meteors 101
Domestic Dietetics 101
Editorials 97
  Saving by Co-operation ; Bogus Mineral Waters ; Veteran Health.
New Stellar Motions 102
Rain Drops 99

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Co-operation is profitable on the principle enunciated by the old merchant, that all expenses saved are so much profit. A single family can profit by purchasing in quantities of such things as will not deteriorate by long keeping. Articles that will not keep can be purchased in quantities, and at a profit, by several families clubbing together and dividing the purchase among themselves. By this method the profit of middlemen is saved, and this in many instances amounts to a large percentage of the price. There is, however, a drawback to this system. In the first place, it is necessary that the purchaser be a good judge of what he buys, because what he saves in the difference of cost between the wholesale and retail price really represents in part what he ordinarily pays for the experience of the retail merchant in selecting the goods. Another difficulty is that many articles required by a family are not often needed, and therefore the private buyer cannot expect to gain the advantages of larger purchasers. Indeed, co-operation involves expenses in the way of rentals and salaries, petty expenses, etc. As usual, the AMERICAN ANALYST, always on the alert to serve its readers, has provided for this service. In addition to furnishing what we believe to be the most instructive, interesting, and elevating weekly paper in the world, at the extremely low price of One Dollar per year, the AMERICAN ANALYST has established the AMERICAN ANALYST CLUB. This Club will enable the members thereof to purchase various articles of use, all of the best quality and workmanship, under full guarantees of excellence, at a saving of from one-quarter to one-half the usual retail price of the same articles purchased elsewhere. The only condition of membership in this Club is that of being a subscriber to the AMERICAN ANALYST. With so many subscribers having varied wants, we have had no difficulty in making arrangements with large manufacturers to supply our members with many things at less than the wholesale price. Full particulars of the plan may be found in another column, to which the reader is referred. Having been commenced only this week, we have not as yet a great variety to offer, and shall add to our facilities from week to week. Of one thing we can assure the reader, that everything we shall have to offer will be carefully selected by competent judges, obtained from reliable manufacturers, and truthfully represented in our columns. It would be well for the reader to study over the ANALYST CLUB announcement, and see if there is not something in it to supply a present want. A saving of several dollars on almost any purchase is well worth making.

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BOGUS MINERAL WATERS.

It may be somewhat flattering to our patriotism to learn that all the tricks of trade are not confined to Yankee land, as can be seen from the quotation given below. The thought arises, nevertheless, how much of this sophistication is carried on here? We know that one of the so-called mineral waters which has been very popular here in bar-rooms, as also on private tables, was nothing more than a slightly salted artificially carbonated water. How many of our so-called lithia waters are genuine is a question. When we are assured by authenticated results, which can only be obtained from a genuine natural water, that a certain mineral water is a genuine natural water, it is well to adhere to that until equally positive evidence is produced that others claiming equal virtues really possess them. Mineral waters are medicines, and no one would risk the health of a human being by administering any medicament about the genuineness of which there was any doubt, therefore we should not run any risk with mineral waters. "The average German is getting to be quite as sharp as the average Yankee in the matter of what Mr. Toodles would call 'slickness,' and every day it is brought home to us that we no longer have the monopoly in the matter of wooden hams, shoe-peg oats, and 'sich.' What Yankee ever conceived a 'slicker' swindle than that recently unearthed in Bavaria? About two years ago a German engineer discovered what he described as the 'strongest iodine spring on earth' in Bavaria. He immediately formed a limited company for its purchase and exploration, and gave the spring the name of 'Kaiserquelle,' in honor of the German Emperor. Analyses showed the waters to possess an absolutely unheard-of proportion of bicarbonate, chloride, iodine, and bromide of sodium. The spring at once commenced to draw custom, and during the first season myriads of bottles of its waters, of iodine soap, and of other preparations, were sold, and thousands of customers took baths at fifty cents each. But suddenly the police arrested the principal proprietor, and it was then discovered that that gentleman had manufactured the spring by means of a water connection between it and his laboratory in his private residence close by, where the chemicals that imparted to the waters their astounding richness were mixed in due proportion by the 'discoverer.' The affair has created considerable sensation, the district where it occurred being deservedly reputed for the excellence of its medicinal springs."

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VETERAN HEALTH.

An interesting study of the health of the survivors of the war of the Rebellion, as indicated by the data furnished in the Eleventh Census, was recently published by Surgeon John L. Billings, U. S. A. Stated briefly, the writer's intention was to show, with regard to the troops of a single State (Massachusetts), what may at some future time be worked up for the Northern States as a whole. In that State about 40,000 veterans were reported as living on the 1st of June, 1890. These form about one-eighth part of the white male population over forty years old. Hence, if they were all equally healthy, the number of sickness cases reported by the census should be seven times as great among the latter as among the former. But the census indicates that there is four times as much sickness among veterans as among other males of the same age. Among the insane, however, the veterans furnished a much smaller proportion than the other males over forty years of age. The sickness statistics were especially high among the veterans from diarrhœal diseases, rheumatism, and heart disease. This fact might have been anticipated, and may, in part at least, be set down as one of the entailments of service in the field. Dr. Billings infers that while the health of some men has been improved by their war discipline, even to the extent of the preservation of lives that would have been lost if their owners had remained at home, the health of the average has been impaired by the exposures of the soldier's life. The veteran has a greater number of days of sickness than other men of the like age-period, and, of course, has somewhat less expectation of life.

SEE SOMETHING NEW ON PAGE 106.

ATLANTIC TO PACIFIC.

A NOTABLE TRANSCONTINENTAL JOURNEY FROM A FEMININE POINT OF VIEW.

(*Concluded from page* 89.)

Redondo Beach is one of the many beautiful places we visited. I will never forget the beauty of the sunset on the ocean, the superb flowers, and the very handsome hotel. Gen. McCook lives there. During the night the train started on, and we reached Redlands some time on the morning of January 23. We took carriages and were driven through this very new town, which is but three years old, but bids fair to be a very interesting place. The handsomest home there is built on a hill, from which is a fine view, and is owned by the Smiley Brothers. At noon we arrived at San Bernardino—had lunch and speeches, and then the most beautiful drive in America through Riverside, acres and acres of orange trees laden with ripe fruit, and then through Magnolia Avenue for six miles—I do not know why it was named Magnolia Avenue, for either side of this broad, splendid road were the pepper trees and enormous palms. All the oranges we could carry with us we took to the train, and it was a very pretty sight to see our car, the "Windermere," decorated with branches of oranges and flowers, and so it remained through the rest of the journey.

We dined on the train that evening, and continued our journey to San Diego, where we arrived early the morning of January 24th. My husband and I, not caring to take the sail on the bay, took a carriage and went to the Brewster Hotel, and from there we took the cable car to Mission Heights, where we had a fine view of five miles up Mission Valley and the surrounding country, where we saw fertility in every direction. Then, crossing San Diego Bay in a ferry-boat, we arrived at the famous Coronado Hotel, where we lunched, bought a souvenir spoon, and waited for the rest of the party, who had been on the bay, and visited Admiral Brown, of Chili fame, on board the U. S. cruiser *San Franciseo*. The hotel is, I believe, the largest one in the world, and one is surprised at finding so elegant and perfectly equipped a resort, made delightful and charming with all kinds of out-door entertainments, luxurious in every particular, to suit the most æsthetic taste at this extreme remote portion of our continent. We crossed the ferry again to San Diego and there attended a reception at the Opera House, where speeches were made, after which the party got aboard the train at six o'clock, and thus ended our third Sunday of the journey. I must not forget a most interesting visit we made that evening at nine o'clock, when the train was stopped at Capestrano to allow us to see the ruins of "Old Mission" lighted up by a bonfire for our benefit. It was built by the monks in —— and destroyed by an earthquake in 1812. The adobe building walls were high, and showed niches where life-sized statues had been, but they had been taken down and placed in an inner room, which we were allowed to look into. There was an old Spaniard there with whom Mrs. Leslie conversed, and with him came two of his daughters, who were very beautiful, and caused quite a stir among the young gentlemen of our party. We again took the cars and got into our berths, for it was getting late—we were travelling through the San Bernardino Mountains all night—and here we bid good-bye to beautiful California. Beautiful California! I have but one fault to find with you—you are too far away from New York City.

The climate in lower California is exhilarating, soft and balmy; in every locality schools abound, spacious and handsome; teachers are well paid; at San Jose the State Normal School is the finest in the country, and everywhere educational advantages are of the best. Everywhere we met invalids rejoicing at the benefits received in this salubrious climate. It is truly wonderful how soon a thriving town, with growing trees, vineyards and orchards, will spring up in that paradise, where everything is lovely. The land must, of course, be irrigated. The water is conducted through pipes and ditches, and the hillsides are seamed with rows of troughs, so that when the farmer desires rain for his crops he has but to turn a faucet and the water flows. And from this warm, sunny latitude, where we could be out of doors and be comfortable without extra wraps, we could look off upon the Sierra Nevada Mountains covered with snow. The tasteful buildings, clean streets, and charming hospitality, show plainly that the society one might find there would be refined and cultured.

The next morning, January 25th, we found ourselves on the Arizona desert, where about noon we stopped at a place where some of the lowest type Indians came to the cars and offered curious earthen jugs and dolls for sale—their own handiwork, and always "two-bit" was the price asked for their wares, which meant twenty-five cents. These creatures I believe to be the worst looking human beings on the face of the earth. They have long hair, which is never combed, and with most of them it hangs over the face and eyes as it does with spaniels; their hands look like clay, and they paint their faces in a hideous manner. They cremate their dead, and one poor terribly crippled fellow, who wore an old hat, upon which was pinned "Dancing Jim," attracted our attention; he had been thought to be dead at one time and they attempted to burn him but he came to life; both hands were off and one foot was gone, yet he laughed and hobbled around, apparently the happiest of the band, and before we left enough money had been given by our party to keep him a year. Several times on the Mojave desert we met with these Navajo Indians, but I do not know what kind of homes they lived in. We were told they were like the digger Indians, who dig a deep pit, and then a number of them will, within a circle of a mile, with long sticks, drive grasshoppers into it, and then they will enjoy a feast. What they do when grasshoppers are out of season I do not know. There was nothing further of interest that day, but at noon of the next day, January 26, we stopped at Laguna and looked over the very interesting village of the Laguna Pueblo Indians. The contrast between these and the Navajos was great; here were built dwellings of adobe, quite habitable and clean, and sometimes two story high, and always on the side of a hill. I went inside one of them, where a squaw was cooking beans in a pot swung inside a corner fireplace, and in one corner of the room was something which might be called a lounge, with bright-colored blankets covering it, then there was jerked meat, and Indian corn hanging up on the wall. The village looked like old ruins, but we were told the Indians had built these structures. I do not understand how they were able to make the walls so straight and plumb. Here, also, the squaws brought the pottery to us, urging us to buy for two-bit, or whatever their prices were. Our car was quite filled with this strange stuff. We proceeded with our journey, and reached quite a modern town, Albuquerque, at about four o'clock. Here I did not leave the car with the rest of the party, who took carriages and were driven over the place. I contented myself with talking to a strange young man, who came into the car and entered into conversation with me. I asked him about the products of this place, and he told me it was a great grape-growing country, and that if I would give him my address, he would send me a basket of grapes when they ripened, which I did. We reached Santa Fé late in the evening. About eighteen miles before reaching there a committee of several gentlemen and two ladies from Santa Fé came aboard the cars, and were introduced through the cars to all of us, and when we arrived we were taken in carriages to the State House, where a speech of welcome was made by Gov. L. Bradford Prince, and a hymn was sung by the Indian children from Ramona school. And this reminds me that just after we left Albuqurque, the house to which Ramona and her lover went to the old priest, and asked to be married, and was refused, was pointed out to us. I am very sorry I neglected to get the photograph of that house and locality, made so interesting by Mrs. Helen Jackson Hunt. The Indian scholars sang well, and to see them as scholars, it is hard to believe they were ever the wild looking animals we saw on the desert. At nine o'clock we attended a handsome reception in the Old Bishop's Palace, given by Gov. and Mrs. Prince, where they now live. Also in the palace we were shown the room in which Gen. Lew Wallace wrote "Ben Hur." It was a most interesting visit. Everything was so quaint and odd, and the ceilings were so low, the doors so small, and the whole palace built of adobe, on one floor. Our entertainment was delightful. One lady, who was helping Mrs. Prince entertain, took very particular notice of me, and showed me through the rooms and the various pictures and articles of interest. I scarcely understood why I was singled out for so much extra attention, until she began to introduce me as "Miss Parloa, of cook book fame," when I quickly saw I had been taken for one of the notable women of the party. After the reception we were returned to the Wagner cars; all of us, oh, so tired! to sleep very soundly until the next morning. At nine o'clock carriages were at the depot to drive us over the city, and to visit some of the places of interest. We could not visit all, nor remain as long as we wanted to in this charming old town, but we did see San Miguel Church, which was built by the Spaniards in 1545. And there is an adobe house quite near this church, which was built by the Indian Pueblo and is much older. There were two Mexican women standing in the doorway, as we looked at this two-story house and it seemed as though they must almost have to stoop, if they went to the upper story, the whole thing was so low and small. We afterwards visited some of the shops where curios were purchased, and the famous filigree silver and gold jewelry stores, where everybody bought some little memento to carry away. Then we were driven to Fort Worth, where we saw a meagre performance called Guard Mount, and then, after hearing the band play its complimentary concert on the plaza, we again resumed our journey, arriving at Las Vegas in the afternoon, where we remained but a very short time, when we were taken in the train a distance of four miles to Hot Springs, to the Montezuma Hotel, where we all climbed a hill—some in carriages—to get there, and here we found, upon the side of a mountain a beautiful, very spacious hotel, built of stone, with every known comfort. We wandered through the building, and away to its top, where some of us found ourselves on a veranda which overlooked the surrounding country, and as we gazed below, we saw a number of the party mounted upon burros, which had been provided with saddles for those who wished to experience what it was to ride a burro. There was a great deal of merriment over this episode. After partaking of a dinner at which there were speeches, we boarded the train and sped on, and the only thing of particular interest that occurred the next day, January 28th, was, that we crossed the line from Colorado into Kansas. Mr. Lyons (delegate from New York City), and his wife we found out, had been married just two years before, so we quietly determined to, in some way, celebrate the day, so after dinner, at about eight o'clock, the ladies and gentlemen assembled in our car, the "Windermere," and then the young couple were astonished to find themselves being congratulated, speeches were made, songs were sung, and altogether it was as merry an anniversary as one could wish. Lots of witty things were said. The groom was called upon to make a speech, and others were asked to tell their matrimonial experiences, some of which were very ludicrous. Bachelors were called upon to account for not being married, and Miss Kate Field was asked to tell us why she never married—so she stood up and told us how somebody else had accounted for her not being married, which was very funny. After we shook hands with the pretty bride and her good husband, all went to their respective cars, and so the 28th ended. Mr. and Mrs. Lyons said it was the most charming way they could have celebrated their second anniversary, and they never would forget the pleasure of it.

We reached Kansas City at midnight, and St. Louis at noon, and here we found a beautiful city indeed, with its wide streets and palatial residences, its numerous extensive parks so beautifully adorned and laid out, its lovely groves and grounds, and its southern hospitality. All charmed me so that I think I would like to live there, though thus far through our journeying I have not seen any place like home. We were driven to the Club House and Fair Grounds, where we were splendidly entertained; speeches were made, and towards evening again wended our way to the Wagner cars. After dinner, when the tables had been removed and the chairs arranged as for our other entertainments, the whole company assembled there. Mr. Berri arose, and with a well-deserved complimentary speech, presented on behalf of the delegates, to Mr. and Mrs. Yager, a beautiful silver salad bowl; also a service of handsome plate to kind and ever watchful Mr. Jerome, who was so overcome that he requested Miss Field to respond for him, which she did. Then, chief of the dining car, Mr. Cornell, was called for, and to him as well as to Mr. Morrison, our accommodating conductor, were presented seal rings, with their initial letter set in diamonds. To the *chef*, a most important man aboard the train, was given a handsome scarf pin, and when he was called upon to make a speech, he thanked us with the remark: "I is a fuss rate cook but I aint no actor, so you must 'scuse me from makin a speech." We reached Toledo at noon the next day, January 30th. Toledo is a very handsome flourishing city, with many beautiful homes, and I never will forget our very pleasant reception there, as there were so many ladies on the committee who did much to make our visit there delightful. After visiting the Chamber of Commerce, where speeches of welcome were made, we were driven to the Club House, which is used for social purposes of entertainment by both ladies and gentlemen, and there we were banqueted. I could not describe the beauty of the decorations, the abundance of flowers, and the profuseness of everything calculated to make us enjoy our stay; the tables were the handsomest we saw. I think the good people must have robbed the greenhouses all round about Toledo, and afterwards these lovely flowers were given to the ladies—all we could carry with us to the train. I am glad to say many of the Toledo ladies accompanied us to Detroit; among them Mrs. Locke (Petroleum Nasby), Mrs. Hubbel, and several others; and then the usual drive through the city, after dinner the hotel, and speeches, and later in the evening General Alger, with his beautiful wife and daughters, entertained us at their house, which is one of the luxurious homes of Detroit. General Alger made a charming little address of welcome, and Marshall P. Wilder when called upon, standing on the noble stairway, cheerful and smiling as he always is, told us some of his good stories. He has through our journey been one of the pleasant features, adding fun and hearty laughter amid the many dull speeches, full of statistics, which no one pretended to remember, but which we, who could not escape, were so often obliged to listen to.

At eleven o'clock P. M. took the train, to find ourselves at seven o'clock Sunday morning at Niagara. Most comfortable sleighs were in waiting to drive us round an hour or so; so we merely took a cup of coffee and a roll, and then we got into the sleighs and took the most beautiful, wonderful sleigh ride it has ever been my fortune to enjoy—round the Rapids, along the turbulent Niagara River, away past two sides of the Falls and through the town, past the Sister Island, through some woods, and after an hour's ride we returned home to the Wagner car and to breakfast, which was well enjoyed. Then on for home, and now we all begin to feel anxious to get to our journey's end. That evening, Mr. Roach who joined us again at Niagara, was presented with pieces of plate, for which he thanked the donors in a neat little speech, and expressed a hope that when the International League of Press Clubs went to St. Paul for their next convention, they would travel on the New York Central, and that he hoped to then make the round trip with them. The whole trip thus far has been glorious, without a single incident to mar the enjoyment. Will it at last cease without a trouble? The train is flying along at the rate of sixty-five miles an hour, for Mr. Roach says he will have us in New York at ten o'clock. Some one remarks he would rather be a little later than travel so fast; some of the ladies appeal for a slower rate, but on we go. We of the "Windermere" sing "Praise God, from whom all blessings flow," and soon we are in the tunnel, and at ten o'clock P. M. we find ourselves in the Grand Central Depot, where friends are waiting to welcome home the delegates of the International League of Press Clubs.

K. F. McE.

RAIN-DROPS.

THE USEFUL WORK THEY PERFORM.

As every student of geology knows, the surface of the earth has undergone in past ages, and is even undergoing at present, the most radical changes in form and condition. From the time when the earth had sufficiently cooled to allow the aqueous vapor in the air to condense and cover its surface with oceans of boiling water, change has succeeded change without cessation, although so slowly that the period of human history is too short to show any notable effect, and we are obliged to look to the records of past geological ages in the rocks and minerals hid beneath the surface to fully appreciate the results of the forces which have acted in times gone by. Mountain ranges higher than any at present existing have been raised up only to be worn down into sand, gravel and clay, and spread out over the bottoms of ancient oceans, which in their turn have been raised up into dry land. Volcanoes have appeared in various parts of the world, covering large tracts of country with lava, igneous rock and volcanic *debris*. Immense fresh-water swamps filled with luxuriant tropical vegetation have been transformed into the coal beds of the present day; beds of sedimentary deposits have been covered up by subsequent layers, and baked and transformed by the internal heat of the earth into rocks that can hardly be distinguished from the primeval crust of the earth; while glaciers and ice-fields have now and again crept over the land, destroying all forms of life, and changing a country covered with luxuriant vegetation into an icy waste, like that of Greenland at the present day. Various geological forces have played their part in these transformations; the shrinking of the earth's crust, and the volcanic forces beneath, have caused the land to rise or fall above or below the sea level; the astronomical motions of the earth in its annual journey around the sun have caused the climate to change from time to time; and perhaps even changes in the radiant energy of the sun itself have not been without their effect upon the earth. But above all other agencies the little rain-drop, insignificant by itself but mighty in numbers, has accomplished more than any other agency in the successive transformations which the face of the earth has undergone. A single rain-drop falling upon a mountain top produces no appreciable effect, but it nevertheless does something. It may move a grain of sand from its place, or even set a pebble in motion towards the valleys below; and the countless millions of rain-drops which follow in succeeding ages will finally succeed in wearing the mountain top away. As they roll down the mountain side, they gather into rivulets, brooks and torrents, and their erosive force becomes greatly increased by gravitation. Another drop may fall into a crevice in the rock, there to remain until it expands in the act of freezing, and splits off a fragment, which in its turn is carried down to lower levels. Or perhaps the rain-drop falls as a snow-flake, which, with many others, is in time consolidated into an ice-field and glacier, which ploughs down the mountain side, crushing and grinding the rocks as it goes into a form which can readily be transported to lower levels by the streams of water formed by its melting. Or perhaps the rain-drop falls upon a limestone formation. A little—a very little, but still a definite quantity—of the hard rock is dissolved and carried away to the ocean, or deposited in a distant locality by the evaporation of the water. The amount dissolved by a single rain-drop is almost infinitesimal, but the great caverns found in all parts of the world owe their origin to nothing but this solvent power of innumerable drops of water. Even the hard, enduring granite will finally crumble away, one of its constituent minerals, feldspar, being decomposed and changed into clay. The erosive power of running water and the chemical action of still water supplement and aid each other in their great work. That the streams and rivers of the more level districts are continually lowering the level of the land is evident to every one. The bars which are formed at the mouths of rivers are only the earth which has been washed down from higher regions by the rushing rain-drops, and the level of the land is constantly being lowered, and, in many cases, perceptibly so by this means. If any proof were needed of the action of this force in past times it would be found in the fossilized rain-prints, where the impressions made in soft mud by the drops of some ancient storm have been hardened into stone, and preserved to us so perfectly that we can tell from what direction the wind was blowing in that shower of millions of years ago. There is still another indirect way in which the rain-drop takes part in the action of geological forces. One would hardly associate the presence of water with a volcanic eruption; but water is always present, and doubtless plays a most important part in the phenomena of volcanic activity. Volcanoes are always found near the seacoast, and the presence of immense volumes of steam is always observed during an eruption. Contrary to the popular idea, neither flame nor smoke proceeds from the crater of a volcano, but only quantities of melted mineral matter, or lava, and immense volumes of steam. It was this pasty mass of finely pulverized lava—incorrectly called ashes—and water which overwhelmed the city of Pompeii and sealed it up for nearly two thousand years. Actual fire played a very small part in the destruction of that ill-fated city. There can be no doubt that water and the internal heat of the earth form a combination which will explain nearly all manifestations of volcanic forces; and so the rain-drop is shown to play another part in the geological transformations. In short, we may say that every particle of matter above the sea, except in regions where rain never falls, is constantly moving, slowly but surely, towards the ocean, and has been ever since the land was first raised above the water. In past ages the action of subterranean forces has raised the ocean beds and turned them into dry land, hills and mountains, only to be once more returned to their native element. We cannot tell if these upheavals are to be repeated in future ages, but it seems more than probable. If not, then it is only a question of time—albeit an almost infinitely long time—when the surface of the earth will become of one uniform level covered with a shallow ocean, and, in the polar regions, surmounted by caps of everlasting ice and snow. But the rain-drop is not the first cause of all the changes which we have noted. When resting in the ocean it is powerless. To perform its work it must be raised up and transferred to the hillsides and mountain tops. Like all other forces on the earth, the force of the falling rain-drop and the rushing torrent has its source in the sun. The geologist can see in imagination the mountains and hills dwindling away and following the lower lands into the sea; but not a rain-drop can fall, not a brook flow down the hillside, or a river down its valley, except the water is first raised from the ocean by the same force that lights and warms our houses, that propels our railroad cars and steamships, that turns the wheels of all our machinery, and without which even life itself would be impossible. From the great central body of our system a constant stream of some mysterious manifestation of Nature is flowing to the earth; and the devastating force of the cyclone, or the imperceptible fall of a snow-flake or rain-drop, alike have their origin in that which, in our ignorance, we are obliged to term the radiant energy of the sun.—*Popular Science News.*

BRIGHT STORIES.

LADY MARY'S BILL.

HOW A CLEVER WOMAN SETTLED A DIFFICULT ACCOUNT.

"What a lovely house! What exquisite taste!" said all the fashionable world when they found themselves in Lady Mary Pardecat's new house in Eaton Place. "Dear Lady Mary, you have the true artistic sense—such a wonderful perception of color!"

"Do you really think so?" babbled poor old Sir James Pardecat, an uxorious old gentleman who was devoted to his young wife. "I am so glad. Of course, I think it very beautiful. But, then, Mary is so clever. You have no idea what a manager she is. Why, if I were to tell you the exact amount which the whole of this furnishing and decorating cost you would not believe it—positively you would not believe it."

As Sir James went about prattling senilely to every one he met about the wonders of his wife, and the marvellously small cost of the magnificence with which she had invested their new house, it happened that an inquisitive lady—one Mrs. Leigh—who was fond of inquiring into details, especially those of a purely personal and private nature, caught him up abruptly with the question,

"Well, and how much did it cost?"

Without reflecting that he had no right to make indiscreet revelations of this kind Sir James named a sum which made the lady toss her head and elevate her eyebrows.

"I shall be very glad to know whom she employed," observed Mrs. Leigh in a peculiar tone. "Such a benefactor of his species ought not to be allowed to hide his light under a bushel."

Sir James never could comprehend sarcasm, and he gave the required information with all the good faith in the world.

"It is perfectly ridiculous," commented Mrs. Leigh, when she had told the story to the first person whom she met afterwards. "The house must have cost at least twice this sum, or probably three times. Depend upon it, my dear, Sir James is a doting old fool, and his wife is deceiving him. Some day he will wake up to find out that she has enormous unpaid bills out over half London—or worse, that somebody else pays her bills for her on the quiet."

Mrs. Leigh was one of those thorough-going little women who never do things by halves. Having made up her mind that Sir James Pardecat was the victim of a gross deception on the part of his wife, and that the furnishing of the new house must have cost at least twice as much as it was supposed to have done, she felt a keen desire to prove herself to be in the right, if it were only for her own satisfaction.

"Besides," she argued, "it's a positive duty not to permit these scandals to go on unchecked. London society has now reached a state when, unless the respectable elements combine to resist and to expose the disreputable ones, there is no knowing what we shall arrive at."

Inspired by this public spirited view, she set to work to make inquiries, and procure estimates of the cost of furnishing and decorating a house of a certain size according to a stated plan which was based as closely as possible on the dimensions and the style of the Pardecat mansion. She applied to various firms, including the one which Sir James had mentioned. The estimates which they sent in as requested varied very considerably, and one firm of great eminence roundly declared that it was impossible to give any more accurate statement than that the total cost would certainly not be less than a specified sum, and might be considerably more. The lowest estimate, however, was largely over the sum which Lady Mary professed to have expended.

The worst of it was, moreover, that the conclusion which Mrs. Leigh drew was perfectly accurate up to a certain point. Lady Mary had been induced by her love of pretty and costly things, and the dexterous seduction of a skilful agent, to run up a bill of nearly twice the amount which she pretended to have spent in furnishing. The agent had told her that there would be no necessity to pay for years, that she would never be troubled in the very slightest degree for the money, and that she could settle her liability by small yearly instalments which would not hamper her in the slightest. In short, every possible temptation was spread in her path so cleverly, that when she yielded at last to the wiles of the upholstery fiend, she did so with a firm conviction that she had made an exceedingly good bargain, and that it was entirely owing to her talents for practical business that she had come off so successful.

It would be delightful, she thought, to be able to furnish her house according to her own taste, without being hampered in any way by debt, or being obliged to confess to her husband that she had been unable to keep within the limits of the sum allotted to her.

It was shortly after the completion of the house that people began to talk about the "Arabian Nights" bazaar which was to be held at the Albert Hall for the benefit of a hospital. The programme announced that the stalls and arena would be arranged to represent some of the most celebrated scenes from the well-known collection of Oriental legends, while the stall-holders and their assistants would impersonate many of the loveliest and most interesting of the heroines.

"You ought to have Lady Mary Pardecat on your committee of management," said little Mrs. Leigh, with a malicious twinkle in her eye. "She has such exquisite taste, and is such a wonderful woman of business. Look how magnificently she furnished her house, and for what a marvellously small sum."

"That is not at all a bad idea," said the Countess Fitzjames, who was one of the leading spirits o the bazaar, and she wrote at once to Lady Mary Pardecat, asking her to serve on the committee.

"What a bore," said Lady Mary, when she had scanned the epistle. "A bazaar of all things in the world, and this cold weather, too! Certainly not. And yet I don't know. It sounds a very pretty idea, and I think I should look very well as a Sultana. And, besides, after all, it is for a charity. But I must hear something about the costumes. I think I should like to go as the Fair Persian."

Lady Mary's ideas with regard to the Orient were a trifle vague. She imagined that a "tout ensemble" which included golden hair, a soft, creamy complexion, large gray eyes, and a delicate "nez retrousse" would form an admirable realization of the beauteous damsel alluded to It did not occur to her that the attribute "fair" could have any significance apart from the question of coloring. When, therefore, she found that the committee were glad to accept all her suggestions "en bloc," and to leave her costume to her own lack of discretion, she entered heartily into the scheme, and was soon actively engaged in arranging that her stall should be the most beautiful and attractive feature of the whole bazaar.

It was shortly after she had taken up with this new amusement that the agent who had beguiled her presented what he called "a formal memorandum" of the cost of furnishing her house in the shape of a gigantic bill, in which every item was entered at length. She glanced over the document carelessly enough, for she attached very little importance to it, but her attention was suddenly arrested by the sight of the total, which largely exceeded her expectation.

"There is some mistake here," she said, petulantly. "You must have overcharged for several things. You said that the whole expense would not be more than so much, and now it mounts up to a good deal more."

The agent hastened to explain, with the most obsequious humility, that the mistake was his, and that nothing had ever grieved him so much in his life as the fact that he had misled her in such an important matter. The explanation was that, when he told her the cost of certain items, he did not know that, owing to the operation of the strikes, and the destruction caused by the blizzards in America, the prices had gone up very greatly, and, though his firm had supplied the articles of the very lowest possible price, simply out of their regard for her, it was impossible for them to charge less without suffering a loss themselves. He was so vexed about it that he was determined at once to resign his post in order to show his sympathy with her.

Lady Mary told him, in reply, that she was very angry both with him and his firm but that it would be idiotic to resign his post, which would do her no good, and would injure him very considerably. She added that she almost felt inclined to insist on their taking the things back.

"It is a most shameful trick," she said, warmly. "But that is always the way that people take advantage of ladies. I have a great mind to lay the whole case before my husband, and he would very soon show you that he was not to be trifled with."

However, she did not do that. She unbosomed herself to the full, and discharged an immense load of vicarious wrath on the head of the agent, who, being highly paid for this kind of service, received the volley with such touching humility that when Lady Mary had exhaused her vials she relented a little.

"I dare say you are not to blame," she said, graciously. "But one can't help being put out by this sort of thing."

She reflected privately that after all this overcharge would not make much difference; she would only have to pay an extra instalment for an additional year or so. The prospect was a distant one, and in the meantime the house was so lovely that she had not the heart to disturb it. The second shock was administered when she paid the first instalment of her debt, for in addition to her receipt she received a written notice to the effect that five per cent. interest was charged on all debts which were not settled within a year from the date of contracting. This meant that by the time she had paid off the original charge she would have incurred a fresh one in the way of interest, amounting to about a third of the legitimate amount.

She began to perceive not only that she was being robbed by handfuls by a set of unscrupulous thieves, but that they considered her so completely in their power that they need no longer take any trouble to hoodwink her. She disliked this latter idea even more than the first, and she set her wits to work to devise a plan which would make her even with these rascally. impostors. She was especially desirous of this, because she had noticed that her husband had lately fallen into a tiresome habit of alluding vaguely to the evil habit which some wives had of running bills without the knowledge of their spouses, and though she did not think that the poor old dear could really be suspicious of her, still she would have liked to know that the receipted bill for the total sum was safe in her escritoire, and that this dangerous liability was no longer impending over her head.

After further reflection she ordered her carriage driven round to the depot of Messrs. Skinnam & Fleece, the celebrated upholsterers, who were responsible for the furnishing of her house. She was received with the utmost obsequiousness by the shop-people, and was shown with much deference and many bows into the back-room, where Mr. Skinnam, the head of the firm, lurked like an overgrown spider in the centre of his web.

A somewhat animated colloquy ensued.

"The long and short of it is," observed Lady Mary, excitedly, "that I won't submit to this extortion. I would sooner tell my husband all about it at once, and go into court, even, rather than be robbed in this way. I am confident that my husband would not pay a penny more than the judge obliged him to, and I can't believe that any judge would say that this way of doing business was fair. It is outrageous; and I am sure that if it were exposed in court and the papers, it would do you no end of harm."

Mr. Skinnam thought so too. The prospect struck him as peculiarly uninviting. He had some difficulty in restraining his temper as he replied, loftily:

"I have no fear whatever of the law, my lady. Our methods of business are absolutely fair and unimpeachable. But I should deeply regret being obliged to deal at all harshly with a lady—"

"Never mind the lady. I am determined not to pay more than the first estimate; so, if you think you are ill-used, and are confident in the justice of your claim—"

(*Concluded next week.*)

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DIAMONDS IN METEORS.

JEWELS REPOSING IN MASSES OF METEORIC IRON.

A remarkable paper was read at the Washington meeting of the A. A. A. S., by Prof. A. E. Foote, of Philadelphia, describing a new locality for meteoric iron near Canon Diablo, Arizona, fragments of which contained diamonds. The report at first was that a vein of pure iron, two miles long and forty feet wide, had been found, containing also gold, silver, and lead; and that surface iron could be gathered by the carload. That was in March of last year. Prof. Foote explored the region thoroughly in June, without finding any such vein; but what he did find was of great geological and mineralogical interest. Crater Mountain, 185 miles north of Tucson, is a peculiar circular elevation, strikingly like an old crater. It rises 432 feet above the surrounding plain, and its cavity is three-fourths of a mile in diameter. Its interior walls are so steep that animals once entrapped within them never escape, but leave their bleached bones at the bottom. The rim of sandstones and limestones is uniformly uplifted on all sides at an angle of 40 deg., while the bottom lies at a depth of from 50 to 100 feet below the general level of the plain. Although the cavity is thus crateriform, no lava, nor obsidian, or any other volcanic product was found. Small meteoric fragments were scattered over an area about a third of a mile in length and 120 feet wide, and extending northwest and southeast. Exactly in line with it, but about two miles from the base of the crater, were found two large masses, one weighing 154 pounds and the other 201 pounds, which were on exhibition, both of them deeply pitted, and the larger one perforated in three places. The latter is now the property of the Ecole des Mines, Paris. Smaller masses were also found, numbering 131 in all, ranging in weight from one-sixteenth of an ounce to 6 pounds 10 ounces. Several of them were coated with arragonite. About 200 pounds of angular sulphureted fragments, also of meteoric origin, were found near the base of the crater, a few of which showed a greenish stain from oxidized nickel. A fragment of a mass weighing 40 pounds was examined by Prof. G. A. Koering, who found it to be extremely hard, a day and a half being taken in making a section and several chisels being broken in the operation. An emery wheel was ruined in trying to polish the section. This led to closer inspection of certain exposed cavities, where small black diamonds were found that cut polished corundum as easily as a knife might cut gypsum. These diamonds are mineralogically of great interest; the presence of such in meteoric having been unknown till 1887, when two Russian mineralogists found traces of diamonds in a meteorite mixture of olivine and bronzite. By treating with acid the amorphous carbon in the cavities, a small white diamond, one-fiftieth of an inch in diameter, was found, as well as troilite and daubreelite. The general mass was three per cent. nickel. The Widmanstattian figures were not regular. The indications are that a large meteorite, weighing about 600 pounds, had become oxidized in passing through the air, and burst before reaching the earth. It is hardly credible that the crater could be accounted for by meteoric impact, and its origin is a problem unsolved. The fact of special interest may be accepted as proved, that diamonds have been found in meteoric fragments. The specimens were carefully examined by the geologists present at the reading of Prof. Foote's paper, and while there were many opinions expressed as to the so-called "crater," and as to its relation to the meteor, none doubted the genuineness of the diamonds.

DOMESTIC DIETETICS.

SPECIALLY PREPARED, FROM PRACTICAL TESTS, FOR THE LADY READERS OF THE "AMERICAN ANALYST."

SEASONABLE FOOD.

March.

MEATS.—Beef, mutton, ham, kidneys, liver, venison, sausage, pork.

GAME AND POULTRY.—Grouse, hare, pigeon, chicken, duck, turkey, geese.

FISH.—Bass, cod, crabs, eels, carp, catfish, flounder, halibut, herring, lobster, mackerel, mussels, oysters, perch, pike, rock-fish, salmon, smelt, whitefish.

VEGETABLES.—Artichokes, beets, beans, cabbage, carrots, celery, garlic, lettuce, onions, parsley, parsnips, potatoes, shallots, spinach, squash, tomatoes, turnips.

FRUIT.—Apples, bananas, grapes, oranges.

PRACTICAL RECIPES.

CINNAMON CAKE.—Take some bread dough when it is just ready to bake, work a little fresh lard or butter in it, roll it out, sprinkle well with granulated sugar, butter and cinnamon.

YEAST.—Take four good sized potatoes; wash them and put them to boil in a quart of water. Take a good pinch of dried hops, and put them to boil in pint of water. Take one cupful of flour and half a cupful of sugar and a good tablespoonful of salt. Mix all these ingredients together. Pour the potatoes and their water upon them, then the hop water. Let this get luke warm and add a cupful of yeast.

LEMON JELLY WITH BANANA.—Make some lemon jelly, using three lemons, a cupful of sugar to half a box of gelatine. Let it get a little stiff. Peel and slice quite thin some fine solid bananas. Pour a layer of jelly in a mould, then put in layer of bananas, then another of jelly and so on until the mould is full. Let it stiffen and serve in a bed of stiffly whipped cream.

CREAMED FRIED POTATOES.—Peel and cut into dice some raw potatoes. Fry to a very light brown in butter, adding pepper and salt. Just before serving pour over them some thick cream; boil up and serve.

OYSTER SOUP.—Put for a quart of oysters, a quart of milk to boil, and add to it a good lump of butter. Pour the liquor from the oysters into the hot milk, add pepper and salt and finely rolled crackers to thicken. About five minutes before serving put in the oysters.

COLD MASHED POTATO CAKES.—Beat an egg into two cupfuls of cold mashed potato, make it into cakes, rub them over with melted butter and bake a fine brown.

POT ROAST.—Take a good porter house roast, and put it in a pot with a small chopped onion. Cover it with hot water and let it simmer slowly for three or four hours. Let it boil down gradually, and after cooking a couple of hours, add salt and pepper. Let the water all boil away, and let the meat fry on both sides. Take the roast out of the pot, pour in more hot water for gravy, thicken with flour and pour on the platter with the meat.

NUT CANDY.—Line a buttered tin with nut meats, either freshly roasted peanuts, hickory nuts or almonds. Place on back of the fire one quart of light brown sugar and one cupful of water. Cook slowly. Test in cold water, and when done, flavor and pour over the nuts. Mark into strips when cool. Maple sugar may be substituted for brown sugar, with good result.

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HEAT AND COLD.—The difference in length of the cables in the East River Bridge, Brooklyn, when the thermometer registers zero and when it registers 100 degrees above, is two feet and four inches. The difference in the rope which hauls the cars is seven feet six inches.

SINGULAR DEATH.—A strange death is reported from New Orleans. It is said that, while playing a hose upon a fire, a telephone wire and an electric light wire got crossed, the stream of water from the nozzle struck the wires, a heavy current followed down the water and killed the fireman who was holding the nozzle.

COTTON CLEANERS.—Machines for opening and cleaning cotton have recently been improved by an automatic feeding apparatus applied to the feed apron, and by means of which one man can tend two machines when being fed with raw or ball cotton easier than he could heretofore tend one. A large amount of seeds and leaf is extracted by this device.

ELECTRICAL BLEACHING.—Very satisfactory results are now being obtained by some of the English paper manufacturers in bleaching paper by electricity, the process rendering the paper perfectly white, without in the least injuring its strength. This process in question depends on the use of a solution of magnesium chloride, which is decomposed by the action of a strong electric current into chlorine and oxygen on the one hand, and into magnesium and hydrogen on the other. Plates of platinum are used as electrodes.

ELECTRICAL GUARDS.—Electricity guards many of the treasures of the Metropolitan Museum of Art in New York. In the room containing the Moses Lazarus collection of miniatures, painted porcelain, and other rich and valuable objects of art, there are wires running underneath the lid of each case. If anybody tried to lift the cover, or disturb it in any way, a bell would ring in General Di Cesnola's office, and also give warning on the ground floor by ringing a big gong. There is a similar arrangement in use with other valuable cases.

TERRORITE.—The inventor of terrorite, the new explosive, said to be more powerful than dynamite, died on Friday, February 26. His name was Dimetry Mindeleff. He was about fifty years old. His advanced ideas brought him into disfavor with the Russian Government, and he was obliged to emigrate to America. As a chemist Mindeleff had more than a national reputation, and several of his important inventions have been patented—among them being a new method for the reduction of cobalt and nickel ores, the destruction of phylloxera by means of pyroligneous acid, and the invention of terrorite, a high explosive that threatens to effect a revolution in warfare and mining.

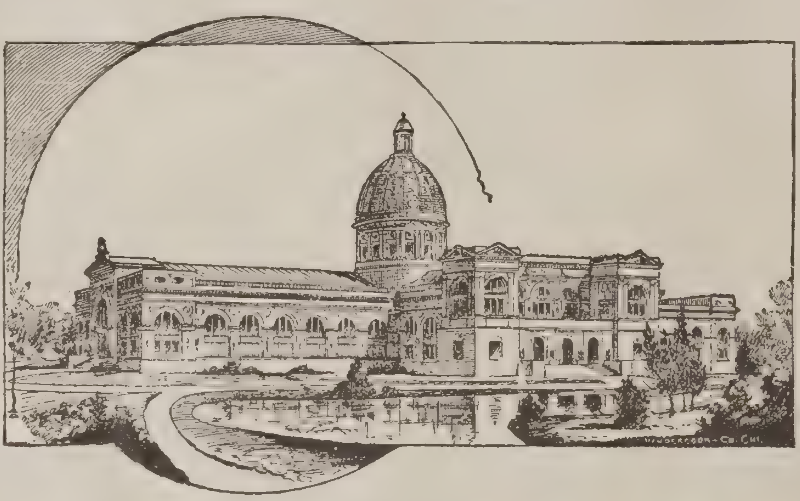
PENETRATION OF LIGHT.—Experiments lately made in Hartford, Conn., show that light can be seen through a clean cut opening of not more than one forty-thousandth of an inch. This fact was determined by taking two thoroughly clean straight edges, placing a piece of paper between the surfaces at one end, the opposite end being allowed to come together. The straight edges being placed between the eye and a strong light in a dark room, a wedge of light was perceived from the ends between which the paper was placed and the opposite, which were brought together. The thickness of the paper being known, the distance apart at the two edges of the small end of the wedge of light was easily calculated, and the result was shown as above.

IMPENETRABLE CORK.—Manufacturers of corks are directing their attention to the production, if possible, of a cork that shall be impenetrable, when used for wine bottles, to the various types of worms which infest the latter. This is true in especial of one description or genus, the grubs of which feed on the fungoid growth that forms on wine vats and mouldy corks, the insect boring and forming galleries in the cork nearest to the glass, and through the holes thus formed the air gains access to the wine, spoiling it. Various methods have been resorted to to overcome the difficulty, one of these being to soak the corks in hot water and then in brandy, dry them, and, when they are put into the bottles coat the tops with a layer of paraffine wax previous to sealing them with ordinary wax, such coating being to prevent any entrance into the cork itself of grubs or insects.

THE COLUMBIAN EXPOSITION.

ILLINOIS STATE BUILDING.

The Illinois Building at the World's Columbian Exposition is by far the most pretentious of those erected by the several States of the Union. Being in a sense the host at the Exposition, it was deemed not only proper but requisite that Illinois should make such appropriation and provide such a building as would enable her to perform creditably the duties of that office. The State appropriated $800,000. Situated on a high terrace, in one of the most favored spots in Jackson Park, the Illinois Building commands, for nearly a mile to the southward, a view of the beautiful waterway which encircles the great island and extends to the buildings for Electricity and Mines, while to the northward, across a branch of the lagoon, is presented the façade of the Palace of Fine Arts. The building in the main is 160 feet wide by 450 feet long. On the north, Memorial Hall forms a wing 50 by 75 feet, and on the south another wing, 75 by 123 feet, and three stories high, accommodates the executive offices, and in the third story, two public halls. The side walls are 47 feet high, while the south wing is 72 feet and the ends 54 feet. Surmounting the building at the centre, a fine dome, 72 feet in diameter, rises to the height of 235 feet. The building is constructed almost wholly of Illinois material—wood, stone, brick and steel—and is covered with "staff" artistically treated. The grand entrance faces the waterway to the south, while at the west and north ends are others scarcely less imposing. In front of the entrances are beautiful tarraces with balustrades, statues, fountains, flowers, and stone steps leading down to the roadways and lagoon landings. The building is embellished with fine carving and statuary. It is thoroughly lighted, first from the side windows, which are placed about fourteen feet above the floor to permit cases to be placed against the walls; second, with skylights placed in the flat roof of the side aisles; and third, with continuous skylights on the ridge of a pitched roof or nave. Ventilation is provided for through windows placed a story above the flat aisle roof and the foot of the sloping roof over the nave. The interior of the structure is appropriately and beautifully ornamented. Memorial Hall, which is fire-proof, has a gallery encircling it, and contains a large and interesting collection of relics and trophies of the war and other periods, all owned by the State. One feature of the Illinois Building which is sure to attract much attention, consists of five model common school rooms, of high grade, fully equipped and furnished under the direction of the State Superintendent of Public Instruction. Here may be seen an illustration of the methods and results of educational work.



THE ILLINOIS STATE BUILDING.

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NEW STELLAR MOTIONS.

A VALUABLE CONTRIBUTION TO ASTRONOMICAL SCIENCE.

At a meeting, on Feby. 23d, of the Boston Scientific Society Dr. Seth C. Chandler read a remarkable paper entitled "Some new stellar motions" which it has since been remarked is a landmark in the onward course of astronomy. After reviewing the work of the Society, which has been to a very considerable extent in the observation of variable stars, passed on to the consideration of the type of a certain group of variable stars, Algol by name. This star, which was discovered by Goodricke about a century ago, is a red star in the constellation of Perseus, astronomically known as Beta Persei. The peculiarity in the variations of this star consists in the fact that the greater part of the time the star remains at its brightest phase; once in every two days and twenty hours it loses its light, going down from a star of the second magnitude to one barely visible to the naked eye. This change, which involves a loss of two-thirds of its light, is accomplished in three and one half hours. After a period of rest of less than half an hour, the star regains its former brightness as rapidly as it had before lost it, and then shines on as a bright star in the heavens. This was all that could be said, with authority, about Algol, excepting that it had some proper motion. Many of the stars have this motion, which is manifested to us by the change in their apparent places in the vault in the sky. It was noticed many years ago that Algol was in the habit of making departures from its predicted time table, and the period was becoming shorter. The amount of this shortening was about three seconds, and this was one of the difficulties which gave evidence against the dark satellite hypothesis. If the dark companion were revolving within any kind of an orbit, it would, according to the laws of gravitation, return to the same point in equal times, and thus the period could never vary. The possibility that the errors could be due to the fact that one or both of the two bodies was not perfectly spherical was considered, but it was found that that cause was not sufficient to account for the disturbance. It then occurred to Dr. Chandler that the inequalities might be due to the presence of a third body in the system. This hypothesis was tested mathematically with good results. It was evident that the disturbing body could not revolve between Algol and its dark satellite, nor could it revolve near at hand, but outside of the orbit of the satellite, for in either case the disturbance would be of short duration. Therefore the dark mass must be sought for at such a distance from the star and its companion that it would exercise about the same disturbing influence upon both. In connection with the investigation comes a very interesting fact. If Algol were a member of a system and revolved in an orbit about a central body, the visible effect, so far as we are concerned, would be manifested in an irregularity of the proper motion of the star. While proper motion itself has been well discussed, any irregularities in the motion are of interest, and are of the greatest delicacy, being exceedingly hard to detect. A careful investigation of the known observations for position of Algol resulted in the very gratifying fact that there evidences of this expected irregularity, and thus from this point decided confirmation of the hypothesis was secured. Only this and one other example of irregularity in proper motion were known. Now Dr. Chandler has determined it accurately for Algol, and has discovered it in four other of the variable stars of this class. If he had nothing more to offer to science, his announcement would be very valuable; but it is only a small part of what he has really discovered. In addition to the two irregularities noted, the light of the star itself is subject to variations in its variations; that is, it does not always remain equally bright at successive maxima, nor does it go down to equal faintness at every minimum. These three data were then the basis of Dr. Chandler's investigations: irregular proper motion, irregular variations, and irregular periods. The quantities are all minute, some of them being almost beyond the possibilities of observation. During the computation the parallax of the star was determined, but this, being so close to the limit of the best means of measure, can hardly be confirmed by observation. Like some other measures in astronomy, the theoretical value must be accepted, since the actual measurements cannot be made. The determination of the parallax of this star is comparable to the measurement of the diameter of a human hair from a distance of half a mile away. After having applied his theory to the solution of all the observed motions and variations of the star, Dr. Chandler declared without hesitation that Algol and its dark satellite together revolve about a central dark body in their system in an orbit about as large as that of Uranus in about 131 years. If the question had been asked, What do we know of Algol? the only answer could have been, It varies in its light. But with the knowledge which this paper gives to us, it is made at once a member of a system comparable to our own solar system. Some minor, uncomformable variations are considered as being probably not resultant from elliptical motion; hence the presence of a fourth body in the system is suggested, making the analogy to ours more and more evident. While the speaker refused to go into the grounds of speculation, and insisted upon stating only what he could prove, he acknowledged that any one accepting the mathematics of his work could arrive at no other opinion. These announcements have a much wider application than merely to the star Algol. Dr. Chandler has shown that the other variables of this class have like irregularities, and the principle which attributes like effects to like causes allows of the assumption that they all depend upon a close, dark satellite for their principal light fluctuations, and that these two bodies revolve in an orbit about a distant companion. When we further consider the conditions which cause the light of the stars to fluctuate in this manner, namely, by the passing between us and the star of a dark, eclipsing body, we must realize that there are many hundreds, or even thousands, of instances of the kind in which the satellite, through the inclination of its orbit to our line of vision, can never pass across our view of the star, which, in such cases, can never become known to us as variables of this character. This being admitted, we must naturally conclude that the kind of motions shown to exist in the case of Algol, giving evidence of complex planetary systems are by no means exceptional, but are possibly the rule in the stellar universe. In other words, the facts brought forward by Dr. Chandler before the Boston Scientific Society form the first real evidence ever brought forward to show that there are in space other systems comparable to the one we live in. And hinging upon this comes the interesting thought that other worlds with other forms of life are distributed throughout celestial space. As to the possibility of the dark central companion being observed, the speaker stated, that supposing it to have no light of its own and being as large as Algol itself, it would be about the eighteenth magnitude, or just about the limit of the power of the great Lick telescope, but if larger than Algol, or if it possessed light of its own, it would probably be within the range of this large telescope under the most favorable conditions for seeing. The possibility that dark stars are common in space is at once established and with this the fact that there being dark stars as well as bright stars, the brightest stars may not be the largest ones, since large stars with faint light would be at a disadvantage. This field is entirely new in astronomy, and promises well for the photographers, who, in Europe, have done remarkable things with their plates, Wolf being able to continue the photographing night after night of the same star on the same spot of the same plate, such being the delicacy of his adjustments. It has long been the opinion of astronomers that the variable stars are the gate through which we must pass to the better knowledge of the life history of the universe. Dr. Chandler's communication must be considered as a most vigorous and effective knock at this gate, and of the most extreme value as opening new fields for productive astronomical research.

BUSINESS NOTES.

HORSFORD'S ACID PHOSPHATE,

A Healthful Tonic. Used in place of lemons or lime juice it will harmonize with such stimulants as are necessary to take. For Impaired Vitality and weakened energy, is wonderfully successful.

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LIFE OF SPURGEON.

BY RUSSELL H. CONWELL, D. D., LL.D.

We are pleased to learn that a biography of the world's greatest divine, Charles H. Spurgeon, of London, is being prepared by one of America's most popular lecturers and pulpit orators, Rev. Russell H. Conwell, of Philadelphia. This must necessarily be a very rich book, and ought to find a place in every family. No man of the nineteenth century has so universally won the heart and esteem of mankind as the late Mr. Spurgeon, and at the same time lived so eventful and interesting a life. His career has been full of signal surprises and remarkable occurrences. Mr. Conwell's personal familiarity with Mr. Spurgeon and his life, together with his great ability as an author and popularity as an orator and minister, is a guarantee to the public of a brilliant, entertaining and instructive book. Next to Mr. Spurgeon's Tabernacle in London, Mr. Conwell, perhaps, preaches to the largest regular congregation of any minister in the world, and in many respects his work in Philadelphia so closely resembles that of the great London divine that he is not infrequently called the Spurgeon of America. Before entering the ministry Mr. Conwell was a lawyer, a great traveler, a journalist, and author of several popular books. "Conwell's Life of Spurgeon" will undoubtedly be regarded as the standard biography of the great London preacher, and is sure to have an immense sale. This work is being issued by the well-known firm of Hubbard Bros., of Philadelphia, and will be sold by subscription.

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FINER THAN A HAIR.—Recent improvements in wire drawing have made it possible to draw platinum and silver into wire that is finer than human hair.

ZINC EXPANSION.—Zinc expands up to the melting point. A bar of hammered zinc six inches long will expand one one-hundredth of an inch in raising the temperature 100 degrees F.

A PARASITE IN MONEY.—A new parasite has been discovered which infects paper money, and is found nowhere else. It is invisible to the unassisted eye, does not attach itself to persons, but multiplies at a rapid rate.

POISONOUS BEESWAX.—The wax of a species of bee common in Patagonia, Terra del Fuego and other parts of Southern South America and the adjacent islands, is a dark blue in color and is said to be more poisonous than arsenic.

RUBBER HORSE-SHOES.—A recent English invention is a horse-shoe of rubber set in the recess of a metal frame. It is especially adapted to cities where there are many asphaltum, wooden or other smooth pavements, for it is impossible for the horse to slip.

COMPRESSED AIR FOR CLEANING.—Compressed air for cleaning cars is used on the Union Pacific Railway at its Portland shops. The air, under a pressure of 50 pounds per square inch, is delivered from a flexible hose with a small nozzle, and is used as water would be.

TO HARDEN IRON.—Ox hoofs and leather are soaked in French nut oil, and are then burnt, pulverized, and mixed with sea salt and potash. The following proportions are used: Thirty per cent. of hoofs, thirty per cent. of leather, thirty per cent. of sea salt, ten per cent. of potash.

A NEW MINERAL.—M. Mallard and E. Cumenge announce the discovery of a new mineral species named bolerite near Santa Maria, in Lower California. It is a copper and silver ore, and it is found in cubic crystals of a fine indigo blue, accompanied by anglesite, phosgenite, cerussite and atacamite.

BEE POISON FOR RHEUMATISM.—Experiments on bee stings as an antidote for rheumatism are interesting. Mr. Aaron Miller has virtually found the sting of bees an antidote to very severe rheumatic pains to which he was subject. Although seventy-four years of age, he voluntarily submitted to stinging, and found it quite efficacious.

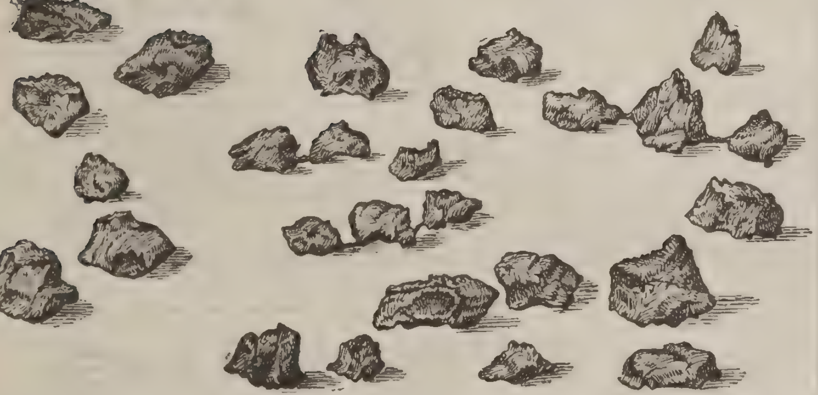
TOO MUCH ALIKE.—"I don't know what to make of it," said Willie Washington, "but I can't seem to get along nicely with Miss Pepperton." "What's the matter now?" "I tried to pay a delicate compliment, you know, and sent her a box of confectionery with a card, on which I wrote "Sweets to the sweet." "And what did she do?" "She sent me a paper of chestnuts and a card which read, 'Similia similibus curantur.'"

A CLOCK THAT TALKS.—At the electrical exhibition to be held at St. Petersburg there is to be exhibited a talking clock that will be sure to attract attention. The dial is made to represent a human face, the interior containing a phonograph. The quarter hours, half hours and hours are told by the phonograph in a strikingly human voice. The clock can be set at any particular hour in the morning so that it will repeat several times the phrase, "It is time to get up."

EARLY MATCHES—The first phosphorus match was made in the penitentiary at Hohenasberg, Germany. The inventor was John Frederick Komerer, a political prisoner. Komerer was a chemist by profession and was permitted to make scientific experiments by his unusually humane jailer. A year after he struck his first lucifer match, Komerer was set free, only to find that he, a penniless man, had to fight capitalists who were interested in his discovery on which no patent was then obtainable. The German government thought matches dangerous and injured the inventor still further by prohibiting their use. This ruined Komerer, who died in extreme poverty.

BUFFALO LITHIA WATER,

FOR URIC ACID DIATHESIS, STONE IN BLADDER, Etc.



Calculi discharged by Dr. B. J. Weistling, of Middletown, Pa., under the use of the water. They are of the Uric Acid and Phosphate variety, resembling hempseeds, laminated, flattened, oval, smooth and fawn colored.

Calculi discharged by R. L. Roys, Meriden, Conn., under the use of these waters. These are of the Uric Acid and Oxalate of Lime variety. Dark brown, hard, studded with tubercles.

WATER IN CASES OF ONE DOZEN HALF GALLON BOTTLES, $5.00, F. O. B. HERE.

☞For Sale by all first-class Druggists, and Pamphlet sent to any address.

THOMAS F. GOODE, Proprietor,

BUFFALO, LITHIA SPRINGS, VA.

ELECTRICAL SHARPENING.—M. Personne has invented an electro-chemical method of sharpening files and other tools. The inventor immerses the files, which have first been thoroughly cleaned of grease, for twenty minutes, suspended from a metal plate, in a mixture of one hundred parts water, six parts nitric acid, and three parts sulphuric acid. The plate is placed in connection with a number of carbons immersed in the same liquid. The corrosion of the metal takes place in the cavities only, so that the edges are sharpened in exactly the same manner as if the operation had been performed by a file-cutter.

AMERICAN SALT.—The total production of salt in the United States for the year 1891 was 10,229 691 barrels, valued at $5,872,186. The importations were about 800,000 barrels, chiefly from England. The finest salt is made by the vacuum pan process. About four-tenths of the American production are due to Michigan, four-tenths to New York, not quite one-tenth to Kansas, and the remainder to Ohio, West Virginia, Louisiana, California, Utah, Nevada, Texas. Perhaps the most wonderful deposit of salt in this country is at Petite Anse, La., where, at a depth of sixteen to twenty-five feet below the surface, a deposit of salt over 1,000 feet thick is found. This salt is of remarkable purity.

NEVER GAIN A MINUTE.—There are few who have not seen the ordinary sign of a jeweler—an immense imitation of a watch hanging over the front of the store, says the New York *World*. But it is safe to say that the number who have ever detected anything curious in these same signs is very small. At 8.18 P. M., April 14, 1865, Abraham Lincoln was assassinated in Ford's Theatre at Washington by John Wilkes Booth. Since that fatal night every one of these watch signs that has gone from the factory of the only man who makes them has shown the hour of 8.18. The man in question says: "I was then working on a sign for Jeweler Adams, who kept a store on Broadway across the street from Stewart's. He came running in while I was at work and told me the news. 'Paint those hands at the hour Lincoln was shot, that the deed may never be forgotten,' he said, pointing to the sign I was making for him. I did so. Since then every watch sign that has gone out of here has been lettered the same as that one."

A Tonic

Horsford's Acid Phosphate.

A most excellent and agreeable tonic and appetizer. It nourishes and invigorates the tired brain and body, imparts renewed energy and vitality, and enlivens the functions.

Dr. EPHRAIM BATEMAN, Cedarville, N. J., sasy:

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CAUTION:—Be sure the word "Horsford's" is on the label. All others are spurious. Never sold in bulk.

CLEANLINESS.—History shows that by cleanliness epidemics may be checked, many of them at least; that police regulations, disinfection and isolation, are potential factors in stamping out the invasion of epidemic diseases, all this, too, without the least regard to the relative position of "Jupiter and Saturn." This is what should be fastened upon the public. Let all theories of epidemics go. Get clean and remain clean; see that overcrowding is avoided, that streets are cleaned, that back alleys and cellars are dry and clean; bathe regularly, disinfect privy vaults and all questionable places. These matters well attended to and epidemics will at least lose one of their favorite foods—filth.—*Texas Health Journal.*

IMPROVED LOCKS.—French ingenuity has contrived a remedy for the inefficiency of ordinary combination locks for houses and apartments, these contrivances being usually of so little avail against professionals who, wasting no time in efforts to raise the tumblers and move the bolt simply, insert the end of a short iron lever or "jimmy" between the door and its rabbet, forcing the whole affair inward, tearing out both locks and bolts on the way. According to the new device for meeting this difficulty a combination is resorted to of the iron shore with the ordinary lock in such a manner that locking the door sets a shore in place which will resist an enormous strain but on the return of the proprietor the unlocking of the door in the usual way shifts the upper end of the shore from the door to the frame, where it presents no obstacle to the opening of the door. The mechanism of the lock itself need not be very elaborate, although the picking of the lock would move both the bolt and the shore, for if there are tumblers enough to prevent picking with a bit of wire, and if the jimmy is insufficient for the purpose, the point of security is attained.

◆◆◆

LAND-SEEKERS.

It will be of interest to those contemplating settling in the Northwest, to know that the choicest farming and timber lands in Wisconsin are tributary to the Wisconsin Central Lines. Settlers on these lands have all the advantages of healthful climate, good market facilities, abundance of fuel and building material, pure and sparkling drinking water, and other important benefits which cannot be enjoyed on the prairies of the West. No droughts, no cyclones, no grasshopper plague and no fever and ague. Now is the time to select choice lands at low prices. Wisconsin is considered one of the most prosperous States in the union. Located directly on the Wisconsin Central Lines in this State are the thriving cities of Burlington, Waukesha, Fond du Lac, Oshkosh, Neenah, Menasha, Waupaca, Stevens Point, Marshfield, Chippewa Falls, Eau Claire, New Richmond and Ashland. For tickets, time tables, maps and full information, apply to G. R. Fitch, D. P. A., Wis. Central, New York, or to Jas. C. Pond, General Passenger and Ticket Agent, Chicago, Ill.

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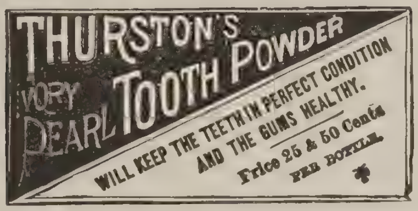
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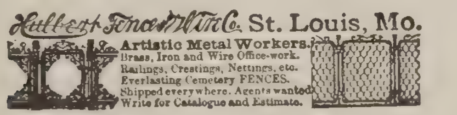
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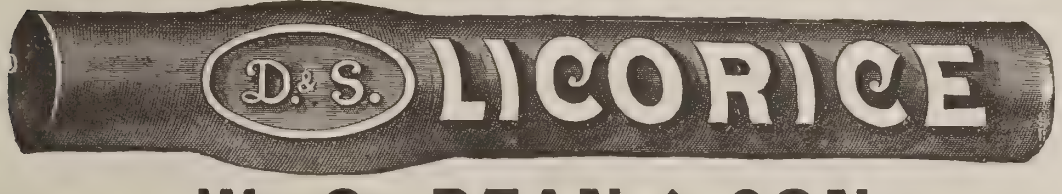

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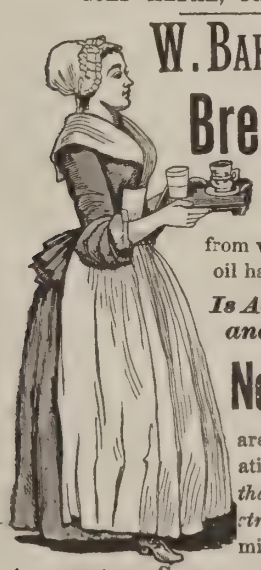

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In looking about us to see how we can best serve our subscribers we have been reminded of an opportunity by the frequent receipt of letters asking us to purchase different articles for our friends. When we have been able to comply with such requests we have been gratified to find that our purchases have been satisfactory, and at remarkably low prices, and we have therefore concluded to establish an

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The only conditions of membership in this club is that of being a subscriber to the AMERICAN ANALYST.

Located in New York City, and able to buy large quantities at a time, manufacturers will be ready to sell us goods of known quality at the lowest cash prices, and we will thus be enabled to save for our members all middlemen's profits.

We do this extra work at extra labor and expense in order to add to the value of a subscription to the AMERICAN ANALYST, and thus largely increase our subscription list. We withdraw all premium offers, and substitute this AMERICAN ANALYST CLUB with its innumerable advantages.

From time to time, as arrangements can be made, the number of articles procurable through the club will be largely increased. Until we shall have a larger list to offer we shall be glad to give information as to cost of any specified article, and procure it when ordered, and cash is remitted. All letters of enquiry must enclose stamp for reply. Samples cannot be sent.

THE AMERICAN ANALYST,
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WATCHES.

A LITTLE USEFUL INFORMATION.

Every one wants a watch, and there is no good reason why this want should not be supplied. By making large purchases for cash, the ANALYST PUBLISHING COMPANY is now prepared to furnish its subscribers with almost any kind of watch made at less than the lowest wholesale price. All these watches, even the cheapest, have the watch safety pinion, tempered hairspring, compensation balance, and are stem wind and and stem set—all modern improvements. All named movements and all adjusted movements are full jeweled.

CONDITIONS.

Now a word as to the exact conditions under which the AMERICAN ANALYST will procure these watches for its subscribers.

The AMERICAN ANALYST has no watches for sale. It has no lists or catalogues. It buys for subscribers as they order—merely to oblige them. It cannot buy cases with special patterns except at the regular prices. It sends nothing C. O. D. or on approval, and does not care to do this work except as a favor to subscribers, who can appreciate its value.

The AMERICAN ANALYST insures the safe delivery of each watch in perfect order. If not delivered in perfect order it must be promptly returned, and the insurance company will pay to us all expenses incurred. But it must be returned within thirty days. Any injury can be detected in that time, and after that time the buyer must be responsible for his oversight. A watch delivered in perfect order must be kept in order by the wearer. The AMERICAN ANALYST cannot guarantee that the wearer will do this, and any injury must be through his negligence and at his expense.

If a watch or case not named in the AMERICAN ANALYST is desired send a description, and the cost will be given.

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Address all orders and remittances to

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QUALITY AND COST OF THESE WATCHES.

MEN'S AND BOYS' WATCHES.

The following are the prices for full-sized open-faced watches in silverine open-faced cases, screw back and screw bezel (front):

7 jewelled	$5 60
15 jewelled, nickel	10 30
Adjusted, nickel	12 65

Add $7 for Montauk and $10 for Monarch open-faced cases.

The subscriber may select his watch from either the Elgin or the Waltham factory.

The "named" movements of the American Waltham factory cost in open-faced silverine cases as follows:

P. S. Bartlett, adjusted	$12 65
Appleton, Tracy & Co., adjusted, gilt.	17 35
Appleton, Tracy & Co., adjusted, nickel	19 70
Crescent Street	24 40

Add $7 for Montauk case and $10 for Monarch open-faced cases.

The Elgin "named" movements in the open-faced silverine cases cost:

G. M. Wheeler, nickel	$10 30
H. H. Taylor, nickel, adjusted	15 00
B. W. Raymond, gilt, adjusted	17 35
B. W. Raymond, nickel, adjusted	19 70

Add $7 for Montauk and $9 for Monarch open-faced cases.

The foregoing will be furnished in engraved or engine turned gold filled HUNTING CASES at $10.50 *extra for Montauks;* $15 *extra for Monarchs.*

Two-ounce, open-face, solid gold, 14 carat U. S. assay cases, cost $30; three-ounce hunting cases cost $42, and 2½-ounce cases, either open or hunting, cost $36.

MEN'S WATCHES—SMALL SIZE.

The American Waltham Company alone make "named" movements 16 size. These are as follows, in Monarch, Crescent or Dueber hunting-case, full engraved:

American Watch Co., 24-jewelled	$100 00
American Watch Co., 16-jewelled	65 00
Riverside, nickel	35 00
Riverside, gilt	27 50
Royal, gilt	23 50

This is the exact Trust price to the jeweller. Open-faced cases average $3 less.

The Elgin factory makes the following movements in the 16 size, which cost in open-face silverine case as follows·

Seven jewels	$ 6 75
Thirteen jewels, gilt	10 75
Adjusted, gilt	15 75
Adjusted, nickel	17 75

Any 16-sized movement will be furnished in open-faced gold-filled engraved Montauks for $7 extra; Monarchs $10. In hunting cases, Montauks $10 and Monarchs $15.

SOME SPECIAL BARGAINS.

United States Walthams in the engraved Montauk hunting cases. $12.25 by registered and insured mail.

Boys' seven-jewelled, medium-sized (16) Elgin movements, cased in silverine hunting cases, for $7.60 each.

The cheapest fully adjusted man's watch is the celebrated Railway, in Moutauk open-faced, gold filled cases at $23.65 net. The regular price of the movement alone is $25.

The John C. Dueber, in hunting case full engraved, for $25. The factory price is $27.

LADIES' WATCHES.

These are in three sizes, but the 6-size is the better time-keeper, and the favorite size for women. All are hunting-case, stem wind, pendant stem set, safety pinion and tempered hair spring.

The Elgin factory makes the following in both 6 and 0 sizes at the prices annexed for solid 14-carat gold engraved cases:

7 jewels, gilt	$25.00
11 jewels, gilt	27.75
11 jewels, nickel	27.75
13 jewels, nickel	30.00
15 jewels, nickel	33.50
17 jewels, adjusted	43.50

In Montauk cases, $10 less; in Monarch cases, $8 less.

In the 6 size, if the subscriber will leave the choice to us whether it shall be an Elgin or Waltham movement, it is nearly always possible to purchase one or the other, so that the cost in a pretty Montauk case will be but $13.75, and in a Monarch engraved, $15.75. But the subscriber who selects for herself must pay the prices before named.

SPECIAL BARGAINS.

United States Waltham watches for ladies, 6 size, 7-jeweled, in Montauk engraved hunting cases, for $12.50, by registered and insured mail.

The cheapest lady's watch, nickel movement, that can be bought in a Dueber-Hampden, 6 size, 11 jewels in settings, nickel movement, in an engraved 20-year Dueber gold-filled hunting case, $14.75.

A full-jewelled lady s watch, Hampden nickel movement, in Dueber case, cost $18.50.

ADJUSTED WATCHES.

The Crescent Street movement is the finest and costliest full-sized movement made in the Waltham or Elgin factories. It is the best in the world, and equal to the old chronometers, costing $600. It is adjusted to the utmost extent of human ability.

The B. W. Raymond is "the pride of the Elgin factory," and the costliest full-sized movement made by it. It is adjusted every way, ranks second only to the Crescent Street, and its admirers give it equal honor.

The Appleton, Tracy & Company ranks with the Raymond. It took the grand prize at the last Paris Exposition against all comers as the most perfect watch exhibited. The Crescent Street and Raymond were not competing, but thousands of others were.

The H. H. Taylor and P. S. Bartlett are each adjusted-to-temperature watches, and very great favorites on account of their low price.

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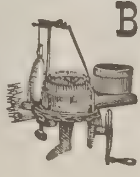

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CONTENTS.

Adulterated Wine 111
Animal Talk 110
Ananias Advertising 114
Attar of Roses 112
Bright Stories
  Lady Mary's Bill—*Concluded* 112
Domestic Dietetics 113
Dynamo Energy 113
Editorials 109
  A Hirsute Humbug; Popular Astronomy; A New Office Suggested; A Fatal Cure.
Electrical Possibilities 110
House Plants 110
Nature's Remedies 111
Sarah Bernhardt in Chinatown 114

A HIRSUTE HUMBUG.

"Ladies should be careful how they use vaseline on the face, for the result of a number of experiments has induced the suspicion that a persistent use of it will cause hair to grow on almost any part of the face. There have been instances known of ladies inducing a heavy growth of hair on the upper lip and chin by using vaseline to drive away pimples. Like some other medicaments, vaseline is too new to allow of all its properties being yet known, but the fact that it will induce a growth of hair, if persistently used seems, to be fairly well settled."

The above clipping is going the rounds of the press, and being seemingly valuable information, is extensively copied. It is really an advertisement in disguise for the concern which manufactures vaseline, and claims to have the exclusive right to sell refined pumpwax under that name. The worst of it is that it contains an unmitigated untruth. Vaseline will not make the hair grow, but not being a true fat acid is really injurious to the scalp. Our advice is to avoid it. This bubble about the virtues of vaseline must be pricked. Some time ago a similar squib went the rounds of newspapers, wherein vaseline was recommended as a good application for shoes and leather. Every currier can tell you that it is absolutely injurious. Leave it alone.

POPULAR ASTRONOMY.

There has been progressing for the last fortnight, in this city, at the Carnegie Music Hall, a series of illustrated astronomical lectures on an entirely novel plan. The spectators see a realistic display of lunar and solar eclipses from the standpoint of observers on the earth, then on the moon, and again from space. This is the first time that the effort has been made in this country to depict the astronomical phenomena by scenic and mechanical means. Similar representations have been given in Berlin by the Urania Society, which was organized for the purpose of spreading astronomical knowledge among the people. Andrew Carnegie is responsible for the reproduction of this unique form of entertainment in America, and he has imported all the necessary theatrical properties from Berlin to establish the enterprise here on a similar basis, it being intended, if this kind of educational amusement is appreciated, to have it repeated in the leading cities. The first scene shown to the spectators is one of the most interesting of the whole evening. It represents a landscape near Berlin, with a lake in the background. It is darkened at first, and then the clouds in the sky begin to take on a rosy hue. It is a very good simulation of an approaching sunrise. The sun appears above the horizon as a blood-red crescent; it is being eclipsed, and as it ascends less and less of the crescent is seen, until the sun is totally eclipsed. It appears then simply as a black disk with the corona about it. The landscape is involved in the curious darkness which results from an eclipse. The sun's reappearance is faithfully depicted, until it becomes a full round ball of pure white light, a very good counterpart of the original. In the next scene the spectators are viewing the same solar eclipse from a point in space supposed to be 80,000 miles away. They see the earth hanging in space—a large globe, with stars shining about it. The rays of the sun coming from the right illuminate half of its surface. The moon is seen to come into the sun's rays and its shadow falls upon the earth and advances across its surface. The phenomenon of a solar eclipse is thus graphically explained. The next scene depicts an eclipse of the moon in space, and in the fourth scene the spectators are looking from a distance of 4,800 miles at the moon suspended in space. From behind the scenes the sun's rays fall upon the moon, and the shortening shadows of the mountains on the moon indicate sunrise. In the next act, for the representation is divided into acts, the observers are supposed to be actually on different portions of the moon's surface, looking on its mountains and craters. The barrenness of the moon's surface is sharply defined in the sunlight striking across it. In another scene the earth is seen hanging over the moon and casting its reflected light upon it. The sun rises on the horizon of the landscape, and is eclipsed by the earth itself, the strange red glow cast upon the moon's surface being very well reproduced. The last act has scenes upon the earth again, one a lunar landscape in the highlands and another a sunset in the Indian Ocean.

A NEW OFFICE SUGGESTED.

A proposition is under discussion in certain circles to ask Congress to enact a law creating a Secretary of Public Health. The *Journal* of the American Medical Association, takes up the idea earnestly. It says: We hope that every physician who receives this journal will take one hour in which to write to his congressional representative and senator, and ask their favorable and active support of this measure. Direct their attention to the filling of American hospitals, infirmaries, insane asylums, and other public and charity institutions, with recent immigrants, and to the fact that from these people spread disease and death. Tell them that a cabinet officer of public health would exercise a great power in the control of immigrant-carrying vessels. That such an officer would be able to formulate laws and regulations which would prove of the utmost value. Direct their attention to the rapid growth of associate charity organizations in all our large cities and centres of population, whose chief function is to provide for these very immigrants. Tell them of the addition to the tax duplicates in every city, because of the immoral, diseased and defective classes of Europe that more than half fill our jails, workhouses and asylums. Tell your congressman and senator this, and tell it to them so strongly that they will not forget it.

A FATAL CURE.

The San Francisco *Record of Medicine* says, in its issue of February 15: The death of Dr. Standiford of this city, from the effects of alcohol and opium, and the committing to jail for drunkenness of the Secretary of the Bichloride of Gold Club in a western town, coming so closely after the death of Col. Mines, gives rise to the suspicion that the Keeley cure is as fallible as other human inventions. Meantime Dr. Keeley's receipts are $3.000 a day and the curing goes merrily on.

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BIG MILL—Work has been started on a pulp and paper mill at Winslow, on the Kenebec River, Me., which is to have a capacity larger than that of any other mill in the world. It will turn out 75 to 80 tons of manila paper daily and employ 250 men.

SEE SOMETHING NEW ON PAGE 117.

HOUSE PLANTS.

THEIR EFFICIENCY AS PURIFIERS OF THE ATMOSPHERE.

It is a pleasing characteristic of cultured people generally that they seek to adorn their homes with green plants and flowers. Place is willingly made for them in the favorite rooms where the warm and life-giving rays of the sun can find an entrance. Especially in winter, when fantastic icicles hang from the window-frames, and forest, field, and meadow slumber under a mantle of snow, there is no more pleasing and grateful occupation for the lover of flowers than through careful tending of choice plants in his comfortably warmed rooms to summon spring, as if with an enchanter's wand, and gladden heart and sense with the beauty and perfume of leaf and flower. For the chamber conservatory it is usual to select free-blooming or ornamental-foliaged plants, which should be annually transplanted in a fresh sandy loam, enriched with humus, or the surface should get a light mineral flower-dressing. Further requirements are a moderately-warmed room, with a sunny exposure, and the plants should stand near the window where the full sunlight can stream upon them. Given these conditions, nothing more is wanted than an occasional light sprinkling from a water-pot to ensure the unfolding of leaf, and bud, and flower. There is a very general impression, moreover, that growing plants exercise an important sanitary influence, purifying the atmosphere of the chamber, by absorbing the noxious gases of animal respiration ; but this is a theory which will hardly bear close investigation. Men and animals give off carbonic acid gas by respiration and through the pores of the skin. A grown man takes in about a pint of air at every breath ; the oxygen of portion of it, passes into the arteries, where it is taken up by the red blood corpuscles and utilized for the combustion of fat and the albumen of the tissues. In this process of combustion the oxygen unites with the carbon to form carbonic acid, which passes over to the venous blood, which carries it to the lungs, whence it is exhaled. In pure mountain or sea air the proportion of carbonic acid is only 3 parts in 10,000 ; the respired breath contains from four to five per cent. of carbonic acid : that is over a hundred times as much as pure air ; the atmosphere of a close room is quickly polluted by the presence of a person in it ; not merely by reason of the carbonic acid, which is deleterous enough, but because, at every respiration impure, watery vapor, carrying decomposing organic matter, is given off along with it. It is this latter which generates the offensive odors in a close, crowded room. The respiration of plants is closely analogous to that of animals, every part of the plant—leaves, root, stem, flowers, and fruit—absorb oxygen, and give off carbonic acid, and this process is continuous day and night, but in the process of assimilation which takes place only under the influence of light, the plant draws from the carbonic acid of the atmosphere all the carbon required to build up its substance. The ground-work of the common notion that plants purify the atmosphere of occupied rooms during the day, although they vitiate it to a certain extent at night is, hence, intelligible enough ; but, as a matter of experiment, it has been determined that a grown man inhales about twenty-four quarts of oxygen an hour, and exhales an equal amount of carbonic acid, or as much as a square metre of leaf surface could assimilate in a summer day of fifteen hours. It is hence, evident that the influence of plants in absorbing the respired carbonic acid of occupied rooms is very slight, while as respects the removal the organic impureties, and in some cases infectious germs, it is of no appreciable account. Indeed, under certain conditions, chamber plants may be directly instrumental in vitiating the air. This is sometimes due to the vapors exhaled by the soil of the pots, especially when it is enriched with decomposing animal manures, such as bone-meal, blood-meal rotten manure, etc. There are, moreover, known instances in which the soil contains the germs of malaria parasites. In such cases, the warm chamber, with the occasional watering, furnish all the conditions favorable to the development of the malarial poisons in the pots, and cases of intermittent fever have been directly traced to the influence of chamber plants. While admitting that flower-culture in the house is one of the most æsthetic, instructive. and grateful occupations that the members of the family can be engaged in, I must, nevertheless, contend that the popular opinion that the plants purify the atmosphere is an erroneous one. There is one and only one means of purifying the atmosphere of the house, and that is frequent change of the air either by artificial ventilation, or partially opened windows.—*E. Ebermeyer in Brunswick Monats-Hefte.*

ANIMAL TALK.

AN INVESTIGATION OF SPEECH IN THE LOWER ANIMALS.

A meeting of the Nineteenth Century Club was held in the assembly rooms of the Madison Square Garden on Tuesday, February 16. The occasion of the meeting was an address by Mr. R. L. Garner on "Speech in the Lower Animals." The president, Mr. Brander Matthews, in introducing the lecturer of the evening, made some brief references to Darwinism, in which he said that Darwin's "Descent of Man" was the most important scientific work since the "Principia" of Newton, and that Mr. Garner's brilliant researches were well calculated to sustain the views introduced by Darwin. Mr. Garner in opening his address gave an interesting account of his early experiments, which commenced some eight or nine years ago. His experiments have been to a large extent among the monkeys, though other classes of animals wére also experimented on. The first principle to be understood in beginning the study of the speech of animals is to associate the act with the sound, when the notes indicating anger, desire, and fear may be understood. All researches of this nature must necessarily be crude, but about two years ago Mr. Garner conceived the idea of using the phonograph to record and analyze the sounds. The phonograph affords an unquestionable proof that certain sounds are accompanied by a definite act or gesture, as when the phonograph gives the note of fear, the monkey gives unmistakable signs of fear. The phonograph thus relieves the difficulty of having no standard or phonetic base upon which to work. The analysis of sounds on the phonograph is accomplished by the differences in speed of rotation of the cylinder, which may be increased or decreased from 40 or 50 to 225 revolutions per minute. Human laughter on the phonograph cylinder by proper manipulation easily deceives animals. Mr. Garner's description of his method of obtaining a record of the sounds was very interesting. A mirror was hung on the horn of the phonograph, which induced the monkey to believe that another monkey was present, when the phonograph began to utter sounds. When anything suspicious occurred, the monkey warned his friend in the mirror, of whom he seemed very fond, lavishing caresses upon him, monkey fashion. A point of great value in Mr. Garner's researches is that monkeys have three or four inflections of the same sound, each with a meaning of its own. If the value of the sounds are considered as Mr. Garner states, it is true speech. Mr. Garner makes no claim that monkeys or other animals have definite sounds for the kinds of food, as bananas, but that they divide food, into sweet food, etc. This speech of animals is a marked contrast to the redundancy of human speech. Monkeys speak, if the term may be allowed, in syllables, the word for food having five or six syllables. Mr. Garner states, on the authority of Frank Cushing, the celebrated white Zuni chief, that the Zuni Indians not only know the language of animals, but put this knowledge to practical use. In conclusion the lecturer gave a brief outline of his projected trip to Africa. Special cages are being made, which will not only afford protection for the impedimenta, but serve also to carry home the captured monkeys. An ingenious arrow has been devised by Mr. Garner, which is fired from an air gun. The tip of the arrow, on striking the animal, drops the shaft. and being charged with anhydrous prussic acid, produces instant death. The cages are provided with electrical fittings, which will give shocks to the thief, whether animal or human. A fine phonograph with telephone attachment is being constructed specially by Mr. Edison for Mr. Garner. Some specimens of the monkey speech were given on the phonograph, including a love duet, which though interesting did not entirely resemble the love duet of Tristan and Isolde. The paper was ably discussed by Dr. Daniel G. Brinton, of the University of Pennsylvania, who took the view of an anthropologist, and Prof. E. D. Perry, of Columbia, who viewed the subject from a philological point of view.

ELECTRICAL POSSIBILITIES.

SOME CONJECTURES AS TO WHAT THE FUTURE IS TO REVEAL.

Until quite recently we have been acquainted with only a very narrow range of ethereal vibrations, from the extreme red of the solar spectrum, on the one side, to the ultra violet on the other—say from three ten-millionths of a millimeter to eight ten-millionths of a millimeter. Within this comparatively narrow range of ethereal vibrations, and the equally limited range of sound vibrations, all our knowledge has been hitherto confined. Whether vibrations of the ether longer than those which affect us as light, may not be constantly at work around us, we have never seriously inquired ; but the researches of Lodge in England, and of Hertz in Germany, give us an almost infinite range of ethereal vibrations or electrical rays, from wave-lengths of thousands of miles down to a few feet. Here is unfolded to us a new and astonishing world—one which it is hard to conceive should contain no possibilities of transmitting and receiving intelligence. Rays of light will not pierce through a wall, nor, as we know only too well, through a London fog. But the electrical vibrations of a yard or more in wave-lengths, of which I have spoken, will easily pierce such mediums, which to them will be transparent. Here, then, is revealed the bewildering possibility of telegraphy without wires, posts, cables, or any of our present costly appliances. Granted a few reasonable postulates, the whole thing comes well within the limits of possible fulfilment. At the present time experimentalists are able to generate electrical waves of any desired wave-length, from a few feet upwards, and to keep up a succession of such waves, radiating into space in all directions. It is possible, too, with some of these rays, if not with all, to refract them through suitably shaped bodies acting as lenses, and so direct a sheaf of rays in any given direction ; enormous lens-shaped masses of pitch, and similar bodies, have been used for this purpose. Also, an experimentalist at a distance can receive some, if not all of these rays on a properly constituted instrument, and, by concerted signals, messages in the Morse code can thus pass from one operator to another. What, therefore, remains to be discovered is simpler and more certain means of generating electrical rays of any desired wave-length, from the shortest—say of a few feet in length—which will easily pass through buildings and fogs to those long waves whose lengths are measured by tens, hundreds, and thousands of miles ; secondly, more delicate receivers, which will respond to wave-lengths between certain defined limits, and be silent to all others ; thirdly, means of darting the sheaf of rays in any desired direction, whether by lenses or refractors, by the help of which the sensitiveness of the receiver (apparently the most difficult of the problems to be solved) would not need to be so delicate as when the rays to be picked up are simply radiating into space in all directions, and fading away according to the law of inverse squares. It may be fairly assumed that the progress of discovery will give instruments capable of adjustment by turning a screw or altering the length of a wire, so as to become receptive of wave-lengths of any preconcerted length. Thus, when adjusted to fifty yards, the transmitter might emit, and the receiver respond to rays varying between forty-five and fifty-five yards, and be silent to all others. This is no mere dream of a visionary philosopher. All the requisites needed to bring it within the grasp of daily life are well within the possibilities of discovery, and are so reasonable, and so clearly in the path of researches which are being actively prosecuted in every capital of Europe, that we may any day expect to hear that they have emerged from the realms of speculation into those of sober fact. Even now, indeed, telegraphing without wires is possible within a restricted radius of a few hundred yards. The discovery of a receiver sensitive to one set of wave-lengths and silent to others is even now partially accomplished. The human eye is an instance, supplied by Nature, of one which replies to the narrow range of electro-magnetic impulses, between the three ten-millionths of a millimeter and the eight ten-millionths of a millimeter. It is not improbable that other sentient beings have organs of sense which do not respond to some or any of the rays to which our eyes are sensitive, but are able to appreciate other vibrations to which we are blind. Such beings would practically be living in a different world from our own. Imagine, for instance, what idea we should form of surrounding objects, were we, endowed with eyes, not sensitive to the ordinary rays of light but sensitive to the vibrations concerned in electric and magnetic phenomena. Glass and crystal would be among the most opaque of bodies. Metals would be more or less transparent, and a telegraph wire through the air would look like a long narrow hole drilled through an impervious solid body. A dynamo in active work would resemble a conflagration, while a permanent magnet would realize the dream of mediæval mystics, and become an everlasting lamp, with no expenditure of energy or consumption of fuel. In some parts of the human brain may lurk an organ capable of transmitting and receiving other ethereal rays of wave-lengths, hitherto undetected by instrumental means. These may be instrumental in transmitting thought from one brain to another. In such a way the recognized cases of thought transference, and the many instances of "coincidence" would be explained. I will not speculate on the results were we eventually to catch and harness these "brain-waves. These are but a few of the many possible discoveries in electrical science. The total amount of *vis viva* which the sun pours out yearly upon every acre of the earth's surface, chiefly in the form of heat, is 800,000 horse-power. Of this supply of energy a flourishing crop utilizes only 3,200 horse-power. The great problem of science is the utilization of the waste energy.—*Prof. William Crookes, in Fortnightly Review.*

ADULTERATED WINE.

A CONTRIBUTION TO THE HISTORY OF FOOD PRODUCTS.

The notion has been disseminated that the chemistry of the food products is a child of our days, and that its birth coincides with the enforcement of the Food Product Law of May 14, 1879. Without disputing this unquestioned fact, we must bear in mind that it was first necessary that organic chemistry be properly developed before it could be of service in a special province, and, on the other hand, the necessity of devising methods for testing foods was bound to make itself felt. This was the case at the end of the seventies, and the effort was made to counteract the evil of food adulteration by means of appropriate legislation. That this calamity had in earlier days occupied the thoughts of legislative bodies is set forth in Peters' work on Mediæval Pharmacy; and even 2,000 years ago Pliny the elder declared that wines were sold only according to label, as the vintage was adulterated even in the vats. Thus it will be seen that wine has always been a favorable subject for adulteration. While classic antiquity, so far as is known, was content to bewail, the mediæval ages threatened the guilty with all the penalties of hell and earth, thus concealing their helplessness under menace, for there were no means at command for proving adulterations. At the beginning of this century a certain apothecary, Rüde, made the attempt to prove adulterations of wine with the aid of chemical analysis, and even if these methods for the detection of gross falsifications have been superseded by better ones, they nevertheless possess historic interest. Rüde summed up his experiences in a little book entitled "Pharmaceutical Experiences," together with a concise treatise on the best method of manufacturing acid and pure vinegar. He first dwells upon the prevailing custom of submitting suspected wines to the apothecary for investigation, and then describes the characteristics which render a wine suspected. He is well aware that lime, alum, water, alcohol and sugar are added to young wines by the manufacturers, in order to enlarge the volume and to improve the vintage; also sandalwood, whortleberries and logwood, for coloring purposes. He regards as permissible the addition of liquor of carbonate of potash or burned sugar, wherewith wines are improved in appearance. It is an interesting fact that fish kernels, grains of Paradise, scarlet herb (*Salvia selarca*), and probably also the fruits of *Daphne mezereum*, were employed in order to render light wines intoxicating. This effect was also said to be produced by an abnormal proportion of sulphurous acid. Rüde foregoes chemical determination of these fruit extracts in wine, but considers the palate of the expert sharp enough to recognize such additions. Moreover, headache and dizziness will, in his opinion, warn the consumer against a second indulgence. He further emphasizes the fact that the presence of foreign dye-stuffs is not chemically determinable, and he endeavors to define precisely only a few colors. He proves the addition of alcohol by the palate—of sugar by "stickiness" of the lips. The author possesses quite a correct conception of precipitates. Dark amorphous deposits are observed in most red wines on standing a considerable time, and will not serve as evidence of falsification; crystalline deposits proceed from potassium or calcium tartrate. With unmistakable enjoyment Rüde dwells on the determination of metals, as also of sulphurous acid. In proof of the latter, the physiological action plays a certain rôle; we must accordingly infer that the chemist in those days could command much larger quantities of material for such investigations than to-day, also that he cheerfully placed his body at the service of science. It is to be hoped that the gentleman did not fail to obtain that recognition which nowadays is at times denied to such tests. Chemically, Rüde proves the presence of sulphurous acid by its reducing action on silver nitrate. The determination of arsenic and lead combinations is performed with the aid of Hahnemann's "Liver humor"—doubtless the sulphuretted hydrogen of our laboratories. Before coming acquainted with the reagent, we read the following effusion: "That there are beings so depraved as intentionally to adulterate wine with arsenic and lead, and that this diabolical artifice is, therefore, a great rarity is shown by my abundant experience in wine investigations, and I have certainly tested many hundred wines for these deleterious substances, but have never been able to detect the slightest traces of either of these dangerous poisons. But that such adulterations have occurred—the first in white wines, the latter in the Spanish varieties—we are assured by two reliable men, viz., Caspar Neumann and Cartheuser. However, I must believe, to the credit of humanity, that such cases have not been very numerous, and were possible only in an age when gross ignorance prevailed, and hardened consciences were more frequent. Nevertheless, as such a monster in human form may yet exist, transforming, from base love of lucre, the refreshing beverage of the mortals into insidious poison, we should test. . . ." This work forms a connecting link between mediæval and modern days. Rüde still clings to thumb-screws and racks, but the thought that the path of analysis is the more correct seems to be already dawning. The presence of iron is shown by means of tinct. gallæ; that of copper salts is betrayed by the addition of ammoniac. Alum is also shown by ammoniac. On the other hand, in red wines alum is disclosed by the addition of lime water; in the absence of the latter, crystals of calcium tartrate are formed, which cling to the filter. Adding alum, a smeary deposit is obtained, which on drying adheres to the filter in the form of four-sided strips, and gradually cracks. The historical interest to which this attempt to determine adulterations may lay claim has prompted the foregoing discussion of the work, which should also be welcome to authors who are interested in the subject, whether from a historical or chemical point of view.—*Bulletin of Pharmacy.*

NATURE'S REMEDIES.

SOME OF THE MEDICAL USES OF FRUITS.

A noted authority of Philadelphia thus summarizes the uses of fruits in relieving diseased conditions of the body. It should not be understood that edible fruits exert direct medicinal effects. They simply encourage the natural processes by which the several remedial processes which they aid are brought about. "Under the category of laxatives, oranges, figs, tamarinds, prunes, mulberries, dates, nectarines and plums may be included; pomegranates, cranberries, blackberries, sumach berries, dewberries, raspberries, barberries, quinces, pears, wild cherries and medlars are astringent; grapes, peaches, strawberries, whortleberries, prickly pears, black currants and melon seeds are diuretics; gooseberries, red and white currants, pumpkins and melons are refrigerants, and lemons, limes and apples are refrigerants and stomachic sedatives. Taken in the early morning, an orange acts very decidedly as a laxative, sometimes amounting to a purgative, and may generally be relied on. * * * Pomegranates are very astringent, and relieve relaxed throat and uvula. The bark of the root, in the form of a decoction, is a good anthelmintic, especially obnoxious to tapeworm. Figs, split open, form excellent poultices for boils and small abscesses. Strawberries and lemons, locally applied, are of some service in the removal of tartar from teeth. * * * Apples are correctives useful in nausea, and even sea-sickness, and the vomiting of pregnancy. They immediately relieve the nausea due to smoking. Bitter almonds contain hydrocyanic acid, and are useful in simple cough; but they frequently produce a sort of urticaria, or nettle-rash. The persimmon, or *diospyros*, is palatable when ripe; but the green fruit is highly astringent, containing much tannin, and is used in diarrhœa and incipient dysentery. The oil of the cocoanut has been recommended as a substitute for cod-liver oil, and is much used in Germany for phthisis. Barberries are very agreeable to fever patients in the form of a drink. Dutch medlars are astringent and not very palatable. Grapes and raisins are nutritive and demulcent, and very grateful in the sick chamber. A so-called 'grape cure' has been much lauded for the treatment of congestions of the liver and stomach, enlarged spleen, scrofula, tuberculosis, etc. Nothing is allowed but water and bread and several pounds of grapes per diem. Quince seeds are demulcent and astringent; boiled in water they make an excellent soothing and sedative lotion in inflammatory diseases of the eyes and eyelids.'

BRIGHT STORIES.

LADY MARY'S BILL.

HOW A CLEVER WOMAN SETTLED A DIFFICULT ACCOUNT.

(*Concluded from page* 100.)

But it was obvious that Mr. Skinnam was by no means in that enviable position. He hemmed a little, tried hard not to scowl, and then observed, in grating tones,

"Perhaps it might be possible to arrange this distressing business in some other way. I can scarcely imagine that your ladyship wishes us to lose this large sum entirely; and, on the other hand, we would do anything to satisfy so esteemed a customer. Now, if your ladyship would give us your valuable recommendation, and enable us to increase our connection by a few wealthy and liberal customers, it would be quite worth our while to give you a receipt in full for the whole amount of your bill in return for the half you offer."

"I don't quite understand," said Lady Mary, a trifle mystified at the turn matters had so suddenly taken, "I will tell my friends, if you like, that I bought my furniture of you; but I can't promise that they will come to you in consequence."

"The mere recommendation would be enough, my lady," replied Mr. Skinnam, eagerly. "And if you would be so good as to decidedly recommend us, that would be better still. Or, stay, my lady—does your ladyship happen to know any of the parties that are getting up this 'Arabian Nights Bazaar' that seems to be spending so much money in advertisements?"

"Well, as it happens," she replied, "I am one of the committee myself. But what has that to do with the question?"

"Well, you see, my lady, for a big bazaar at the Albert Hall, say, they would want some dozen stalls to be erected, decorated and furnished, and besides, there would be any amount of scarves, ribbons, hangings, red cloth, Italian poles, and—er—what not, to be supplied, all of which would cost money, and might be reasonably expected to bring in a handsome piece of profit to the firm that was lucky enough to get the order."

He paused and looked her straight in the face.

"Now, if your ladyship could get us the contract to supply the bazaar—it would be worth our while to make the deduction you wish, and give you an acquittance in full."

"I am not sure that I comprehend," said Lady Mary, in whose visage dislike and perplexity struggled for the mastery. "How can it be worth your while—"

"There is nothing to understand," replied Skinnam in his most obsequious manner. "All that we want is your esteemed recommendation, and if we get the order, the acquittance shall be in your hands by the next post."

"Oh, if that is all you want," said Lady Mary, her brow clearing, "I think I can assure you of the order, for Lady Fitz James asked me only yesterday what I thought, and I would have recommended you only I was so angry with you; and nothing has been decided yet."

Lady Mary had not over-estimated her power. She consulted the committee, and told them that the man who had furnished her house wanted to "do" the bazaar. The committee agreed that if "the man" was as successful with the bazaar as he had been with the house, it ought to be a very pretty show indeed. The result was that Messrs. Skinnam & Fleece duly received the order, and on the following morning the senior partner called in Eaton Place and presented Lady Mary with her receipt.

"And your ladyship may be quite easy in your mind," he said. "We were determined to do the thing handsomely, so it is understood in the shop that we consider that we had overcharged, and the books have been corrected."

As he left the boudoir Sir James Pardecat entered, and Lady Mary had only time to hide the receipted bill hastily in her blotting-book before her husband was bending over her, looking anxiously in her face with the wistful expression which had astonished her of late.

"Is anything the matter?" she inquired, a little peevishly.

"I hope not," he said, with a lingering intonation.

"Then for Heaven's sake go away, like a dear, good creature, for I am up to my eyes in business for this tiresome bazaar, and I haven't a moment to spare."

This seemed to be so literally true, that with inconceivable carelessness she forgot all about the telltale receipt which she had thrust so hastily into her blotting-book, and there it lay unheeded until about a month later. Then it happened that she was once more in a great hurry, and sent her husband to get a sheet of paper. The first thing which met his eyes when he opened the book was the bill.

He looked at it with horrified curiosity, and then sat down in his wife's chair, completely overwhelmed with emotion. All his worst suspicions seemed to have been realized. The insinuations which Mrs. Leigh had thrown out, to the effect that Lady Mary seemed to have a wonderful power of getting things at half the price which other people would have to pay for them, had, for some time past, aroused uneasy ideas in his breast, which he had tried hard to dispel, but in vain. Now, however, when positive proof that his wife had deceived him lay within his very grasp, it is not strange that he jumped at once to the worst possible conclusion, and that heaven and earth seemed to reel round him in the shock of that terrible discovery.

As soon as his limbs had recovered their power he hastened to Lady Mary, and with the proof of her guilt in his hand, taxed her with this deception.

"Well, she replied, with unexpected calmness, "it is of no use denying it—so, I did deceive you. I didn't mean to, and I am sorry I did not tell you at once. I had no intention of doing it at first, but those rascals from Skinnam's led me to exceed a little here and a little there, in order to make the rooms more chic, and they thoroughly took me in by understating prices, and promising that I could pay off bit by bit at my own convenience. I am only a woman, and I like pretty things, and it seemed so easy—so it isn't odd that I gave way. Then, when they sent in the bill, they overcharged on everything in the most shameful way. But, after all, what does it matter? The affair is settled. Voila!"

"What does it matter?" shrieked Sir James. "Wretched woman, as if that were not the worst part of all! Who gave you the money? I insist on knowing."

"Who gave me the money?" replied Lady Mary, elevating her eyebrows; "who would, I should like to know. You really must be going out of your mind, James!" Then with startling abruptness her bearing altered in the most surprising manner, her beautiful eyes flashed fire, and her tiny fingers assumed a most threatening pose. "You are a wicked old man," she cried, in ringing tones, which fell on Sir James's ear like the blast of a trumpet, "and what is worse, a very foolish one. I have a very good mind to go away from you at once and never speak to you again."

"How did you manage to pay that bill?" he repeated, doggedly.

"I didn't pay it. At least, I only paid what I owed," she answered, contemptuously. "You don't deserve to know any more than that; but just to show you what an imbecile you have made of yourself, sit down, if you can, and I will tell you." She rapidly ran over the outline of the compromise she had effected with Messrs. Skinnam & Fleece. "And, would you believe it, at the close of the bazaar these rascals actually sent us in a bill which would have swallowed up nearly all the receipts, and was quite double what they were entitled to charge, even on the most liberal scale. That was their way of recouping themselves. Why, what's the matter? Are you ill? You look very queer."

For Sir James had risen with a fixed, ghastly look of horror on his countenance.

"Good God!" he cried, in a tone of bitter anguish, "to think that my wife, whom I have so loved and honored, could have done this horrible thing. I would rather have paid the whole sum ten times over than that you should have sunk so low, and so disgraced the name you bear, as to rob a charity."

"Why, you silly goose!" she cried, quickly, secretly rather pleased to find that it was not the money that the poor old thing was fussing so much about. "Do you suppose that we paid their monstrous charges? Not a bit of it. I flew into the city and told Harry Pardecat all about it—about my folly, and the bill, and everything. I knew that he would get me out of it—he is so clever, and as he is a nephew, it didn't matter. Besides, he swore that he wouldn't say a word about it at home."

"The scene must have been funny," continued Lady Mary, after a slight interval for breath. "When Skinnam came to receive payment, Harry, in the most natural manner, handed him a check for half the amount. 'There is some mistake,' said Skinnam. This is only half the amount.' 'Exactly,' replied Harry, as coolly as possible. 'I thought that was your regular way of doing business, to charge double, take half, and receipt the original bill.' Harry says that the rascal's face was a sight to witness, and that he wanted to know — what a lot of naughty swear words — what Harry meant. 'Why, here is one of your bills,' cried Harry, pulling out my bill. 'I understand that in that case you took half rather than go into court and be exposed, and so I suppose you will do the same in this case rather than go into court and appear as a charity robber. And if you swear again in my presence, added Harry, quite calmly, as if it were the most natural remark in the world, 'I will throw you out of the room.' Well, the result was that Skinnam, seeing that he had a clever and determined man to deal with, took the check and walked off, looking the very picture of a defeated scoundrel. Now, have I robbed the charity or any one?"—*London Truth.*

ATTAR OF ROSES.

THE MANUFACTURE OF THE OIL IN TURKEY.

The town of Kasanlik is the most important centre of this industry. According to Turkish etymology, the meaning of Kasanlik is the place of stills or big kettles. It is said that the cultivation of rose-bushes and the art of distilling the petals of these flowers was introduced into this place, long years ago, by a Turkish merchant from Tunis. The roses are now cultivated in one hundred and fifty villages of the district of Kasanlik, which forms the northern part of southern Roumelia. The climate of Kasanlik is temperate. Its soil is sandy, and consequently porous and very permeable, indispensable conditions for preventing an accumulation of water in the subsoil, which kills the rose bushes after a frost. This soil also arrests the development of mushrooms, which attacks the roots of the bushes. Two varieties only of rose are cultivated, as a general thing, a red and a white. The red belongs to the species *Rosa damascena*, sometimes called the rose of the four seasons; the white is a variety of *Rosa alba*. The petals of the white rose are never distilled alone, but cultivators not burdened with scruples find its culture profitable, because the product of its distillation, though poor in perfume, is rich in stearoptene, that solid crystalline substance, which is separated from any volatile oil on long standing or at low temperatures. This stearoptene is mixed with the oil of the red rose, and the mixture can then be easily adulterated with oil of geranium, which comes from India. The rose shrubs produce flowers from their second year, and reach a maximum of production at the end of five years. The roses, which begin to bloom from the 20th to the 28th of May, are picked every morning until the 15th or 20th of June by women, whose fingers, hardened by practice, do not feel the thorns, but which are covered, in the course of their work, by a blackish resin, which has the smell of turpentine. This is scratched off the fingers at the end of each day, and rolled into pellets, which, it is said, impart a delicious odor to the smoke of tobacco. Bulgaria produces in good years about three tons of the attar, or, as it is sometimes written, otto of roses. In average years the production amounts to about one and a half or three-quarter tons. The value of the product in 1889 was $210,000. Competition by Turkish distillers in Asia Minor caused the price in 1889 to fall 12 per cent. The distillation is effected in large stills which hold 110 pounds of petals and 75 gallons of water, furnishing 25 gallons of rosa-water, at the extremity of the refrigerating worm of the still. The first product (6½ gallons), being more richly perfumed, is called double rose-water; then there are taken off 7½ gallons of an intermediate quality, and finally 11¼ gallons of an inferior quality. The small quantity of oil which floats on the top of the water is separated from it by the use of a Florentine receiver, and sells for $200 a quart, the rose-water being worth about half a dollar a quart. Attar of roses, taken in a dose of from two to five drops, is thought to increase the activity of the digestive organs. A double dose, it appears, always produces an opposite action. As to its general effect, that is characterized by a marked disposition to sleep. The Turkish oil of geranium has a like effect.

DOMESTIC DIETETICS.

SPECIALLY PREPARED, FROM PRACTICAL TESTS, FOR THE LADY READERS OF THE "AMERICAN ANALYST."

SEASONABLE FOOD.

March.

MEATS.—Beef, mutton, ham, kidneys, liver, venison, sausage, pork.

GAME AND POULTRY.—Grouse, hare, pigeon, chicken, duck, turkey, geese.

FISH.—Bass, cod, crabs, eels, carp, catfish, flounder, halibut, herring, lobster, mackerel, mussels, oysters, perch, pike, rock-fish, salmon, smelt, whitefish.

VEGETABLES.—Artichokes, beets, beans, cabbage, carrots, celery, garlic, lettuce, onions, parsley, parsnips, potatoes, shallots, spinach, squash, tomatoes, turnips.

FRUIT.—Apples, bananas, grapes, oranges.

PRACTICAL RECIPES.

TURKEY SOUP.—Put the turkey bones in the soup-pot with just enough water to cover them; add a stalk of celery chopped, and cook for an hour, then stir in a little of the dressing and a well beaten egg. Remove it from the fire, add a teaspoonful of butter; pepper and salt to taste and serve.

OMELET WITH CORN STARCH.—Beat separately the yolks and whites of six eggs; mix with the yolks one cupful milk, three teaspoonfuls corn starch, one teaspoonful baking powder, and a little salt; put in the whites the last thing, and cook in butter.

APPLE DUMPLING.—Butter a baking dish, slice into it some fine tart apples, sprinkling them with nutmeg, bits of butter, and sufficient sugar to sweeten. Make a rich biscuit dough, allowing about three tablespoonfuls of butter to two cupfuls of flour, with a teaspoonful of baking powder, a little salt, and milk enough to mix it. Sift the flour, salt, and baking powder together, then chop the butter into them with a knife; moisten with the milk and roll out. Cover the dish of apples with this paste; press it well down on top, and turn the edges well under. Bake in a steady oven, and when done turn out on a dish, and serve with either hard or soft sauce.

MRS. H.'S CHOCOLATE CAKE.—Mix together one cupful sugar, half cupful butter, half cupful milk, one and a half cupfuls flour, one teaspoonful baking powder, the yolks of four eggs and the whites of three, beaten together, and a little vanilla; melt one-third of a cake of chocolate, and beat it into the cake the last thing. Bake in three layers, or else bake in one pan and cut in two with a coarse thread. Make some boiled icing with the extra egg-white and spread the cakes with it; put them together and let it harden. This is very nice.

MRS. H.'S FRUIT PUDDING.—One cupful molasses, one cupful chopped suet, one cupful sour milk, one cupful raisins, one teaspoonful soda, one teaspoonful cinnamen, nutmeg, and cloves, mixed; flour enough to make a stiff batter. Grease a tin mould, fill it two-thirds full, and boil steadily for four hours.

LEMON CUSTARD.—The juice of two lemons and the grated rind of one mixed with a cupful of sugar, three tablespoonfuls of corn starch, a pinch of salt, and the yolks of three eggs, well beaten. Add this gradually, beating all the time, to three cupfuls of boiling water; boil up, pour into a dish; pile the egg-whites, beaten stiff, on top, set in the oven a moment to stiffen, and set aside to cool.

ORANGE JELLY.—The juice of eight oranges and six lemons. Grate the peel of one half the fruit and steep it in a pint of cold water; when the flavor is extracted mix the water with the juice and add three-quarters of a pound of white sugar, a little over half a box of gelatine, and the beaten whites of seven eggs; put it in a saucepan and stir until it has boiled for a few moments, then strain and put away in glasses or moulds.

DYNAMO ENERGY.

THE ELECTRICAL TRANSMISSION OF POWER.

The transmission of electrical power depends upon a property which has been experimentally discovered to exist in an ordinary dynamo, namely, its reversibility. The great electrician, Clerk Maxwell, was asked, shortly before his death, what, in his opinion, was the greatest discovery of the age. His answer was, "The reversibility of the Gramme machine. That machine is, in effect, the prototype of the modern dyamo." The meaning of the term "reversibility," as it presented itself to Clerk Maxwell's mind, was this: "If from a dynamo, caused to rotate by mechanical power, currents can be generated and despatched through an external circuit for useful work, and if (as experience has now established) the converse is also true, that a current sent through a dynamo will cause that dynamo to revolve, then it would follow that the length of the conductor conveying the current from one dynamo to the other would be a matter of comparatively small importance, and the conveyance of electrical energy to a distance would no longer be an insoluble problem." The dynamo is a contrivance for rapidly rotating coils of wire in a magnetic field. The magnets are so arranged with reference to each other that the field magnets shall give out the greatest possible number of lines of force, and that these lines shall travel in such a direction that all, or the greatest possible number of them, shall be cut out by the revolving coils of the armature. The output of a dynamo is proportionate to the weight of metal contained in the magnets, the number and length of the wire coils that surround them, and the rapidity with which the armature is made to revolve. As these factors can practically be increased to any required extent, with a powerful steam-engine and a heavy weight of metal in the dynamo, a force equal to many hundreds of horse-power can be generated and utilized as required. Misapprehension sometimes arises as to the amount of force necessary to be exercised in order to obtain the current. Why is an engine of many horse-power required to drive a machine which, to all appearance, could be turned by a man's hand? While no current is passing the beautiful fitting of a first-class dynamo, the perfect adjustment by which all unnecessary friction is avoided, and the truth of the journals on which the shaft of the armature travels, render it quite possible to turn the machine by hand; but when the current is passing all this is changed, and forces are developed which can be overcome only by a large expenditure of energy. The silence with which the dynamo revolves, and the apparent ease with which the whole thing acts, are very deceptive to the eye. No current at all could be obtained unless by using a very strong force to break down the magnetic attraction exerted inside the dynamo. You can never get out of any machine more work than you put into it, and though the character of the energy you put in may be transmuted by means of proper appliances at will, its total amount, when finally applied to work, will be in exact proportion to the power expended. A strong motive power is necessary to make the dynamo armature revolve, because the dynamo is expressly built for the purpose of opposing magnetic resistance to that rotation. The field magnets and the armature are opposing magnets; they are so arranged that the north pole of the one perpetually attracts the south pole of the other, and the whole machine would be held rigid by the force of their mutual attraction if that attraction were not forcibly overcome by mechanical energy. It must be understood that, in order to obtain work from an electric motor, several transmutations of power are necessary. There must be a prime motor, such, for instance, as a turbine or a steam-engine. This engine must exert its force on a dynamo, which will transmute the power expended on it into electric energy. Conductors—usually copper wires—must be employed to convey the energy to a second dynamo, specially adapted to act as a motor; the force expended by the steam-engine is here finally reconverted into mechanical power, and utilized as required. It was at first held that the best dynamo must necessarily be the best motor. This is shown by experience to be wrong. The dynamo, in ideal, has an enormously powerful field and a very weak armature, but the motor should have an armature and field with relatively equal magnetic movements; that is to say that in a motor armature and field should do equal work. The motor, then, differing from the dynamo only so far as is necessary for the proper performance of its special work, is placed upon the spot where the energy evolved by the generator is to be reconverted into mechanical work. In outward form it differs but little from the generator, except that it has a squarer appearance, owing to the larger size of its armature. On the armature shaft are placed a commutator and collecting brushes, which convey to it the dynamo current. The sole duty of the motor is to receive (not to generate) this current, which is employed only in making the motor armature rotate. Here commences the reversal of the dynamo action. In the dynamo the belt from the steam-engine forces the armature round; in the motor the armature is free to revolve, and the passage of electricity through the coils prompts them them to place themselves in such a position as to enclose the greatest possible number of lines of force, and so increase the rotation. Commutators and brushes make this impulse continuous. The lines of force in the field magnet increase in intensity as the rotation of the armature becomes more rapid, and finally a torque or twisting movement is imparted to the amature, equal, allowing for a small percentage of loss in transmission, to the power exerted by the distant prime motor.

Subscriptions $1 per year. Now is the time to subscribe.

ANANIAS ADVERTISING.

THE DEADLY PARALLEL COLUMN STANDARD APPLIED TO A FEW OF SUCH ADVERTISMENTS.

A careful comparison of the following statements, chosen at ramdon from the advertisements of the Royal Baking Powder Company, and the reference they give, will be interesting reading to the consumers of baking powders. We refrain from all comment.

The Royal Company Advertises: That the Royal Baking Powder is a "pure cream of tartar powder, absolutely pure," and shown by the U. S. and Canadian Govts., by the State Food Commissions of Ohio, New Jersey, etc., "superior to all others in purity and strength."	The U. S. Govt. Report (page 599) shows that the Royal contains lime, sulphuric acid, ammonia, and an unnecessary amount of starch, and every official* report confirms the presence of ammonia in Royal Baking powder. The Canadian Report does not put the Royal in the first-class of baking powders at all, but in the third-class, cream of tartar powders containing carbonate of ammonia. Ammonia is unfit for use in food, and it is used in baking powder simply to cheapen the cost. It is estimated that the Royal Baking Powder Co's. profit is increased by $150,000 a year by using ammonia instead of cream of tartar and soda.
Another Royal "Ad." States: "Action of the New York State Board of Health. Royal the only absolutely pure baking powder made."	The Fact Is: Dr. Alfred Carroll, the Secretary of the Board, characterized the advertisement as a forgery. The following is a part of the resolution unanimously adopted by the State Board of Health: "*Resolved*, That the advertisement of the Royal Baking Powder Co., quoting the State Board of Health as recommending, through one of its analysts, its purity, etc., is a misrepresentation."
Again— The Royal quotes "Prof. McMurtrie, late Chief Chemist of the Dept. of Agriculture, U. S. Govt."	Who is this "Prof. McMurtrie?" He is simply an employee in the cream of tartar factory owned by the Royal Company.
Again— The reader may remember the Royal's "black line" advertisement, where the Royal is represented by the longest line, and all other powders are ranged below, down to a mere dot. The lines were based, the Royal says, on "Experiments made by Prof. Schedler."	Who is "Prof. Schedler?" Upon inquiry we find he is and has been Superintendent of the Royal's cream of tartar factory. Nice business for a company to dub its own employees "Professors," and publish certificates so ingeniously worded as to appear Reports of Government Chemists.
Another Instance: The Royal published a list of baking powders purporting to come from the Ohio Official Report. They showed the Royal had the greatest strength, by the easy method of omitting from the comparison all those that were found stronger.	Gen. Hurst, the Ohio Food Commissioner, exposed the Royal trick, and characterized their statements as "garbled, false, and misleading;" adding, "against such impudence and cupidity in perverting an official paper I protest."
The Royal states that it is shown by the U. S. Govt. the Canadian Govt., Ohio and N. J. Food Commissions, to be superior in strength, etc.	Such statements are simply false. The actual figures from the official reports above named show, for instance, that Cleveland's baking powder is 4½ per cent. stronger than the Royal.
There is no doubt that alum is an article unfit for human consumption, and it is clear, too, that it is used in many baking powders. The Royal Co. quotes from Official Reports, showing that alum powders are unfit to use. So far, their quotations are right.	They then give what purports to be a list of alum powders from Official Reports. In this list are really some alum powders, but they boldly insert the names of others which are not alum powders, and which are not so classed. This kind of matter they ask, and frequently get, the newspapers to publish as pure editorial reading. We ourselves have taken a little pains to look up the legal aspect of this case, and if the best legal advice we can get in this city is worth anything, the newspapers that publish this Royal work are likely to find it is pretty expensive advertising for them one of these days.

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* The Ohio Report, page [illegible]; New Jersey Report, page 87; Canadian Government Report, page 16.

AN ACTRESS IN CHINATOWN.

AN ADVENTURE OF SARAH BERNHARDT IN CALIFORNIA.

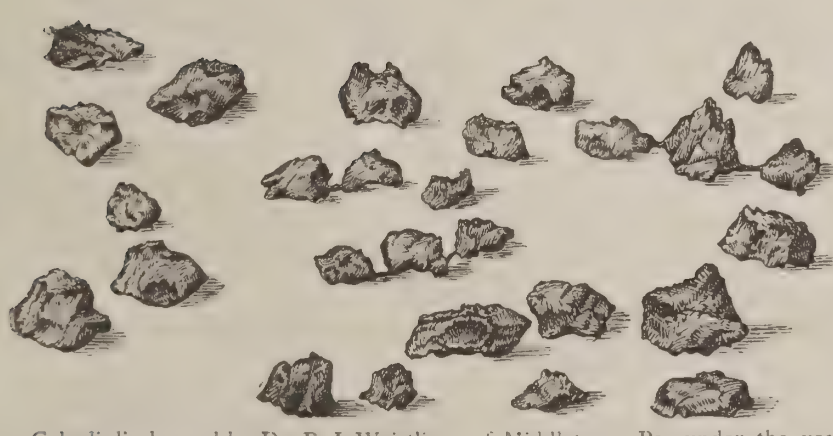
Howard Paul, in the course of a letter to the London *Caterer*, relates the following anecdote of an experience with the famous French *tragedienne*, Sarah Bernhardt: "The last time I encountered Sarah was on a flying trip from Omaha to San Francisco. She had chartered a Pullman for herself and company, and courteously invited me to have a seat in her car. I never saw her in such tremendous spirits as she was on this journey. She would stand on the rear platform of the train and imitate the yells of the cowboys and the warwhoops of the Indians, much to the astonishment of the inhabitants of the settlements through which the train was passing; and then, to vary the monotony of matters, she would re-enter her car and get up a vigorous sham battle with biscuits as the weapons. I really believe she had laid in a dozen tins of Huntley & Palmer's most toothsome products for the express purpose of this mimic warfare. When the floor was completely covered with the harmless missiles a servant swept up the *debris* and gave it to the Indians at the first station at which the train stopped. She entered into this biscuit battle with all the zest of a mischievous boy, and when she made an effective shot—such, for instance, as hitting her leading man on the nose, or disarranging the back hair of the soubrette—she would literally scream with delight. When we arrived in San Francisco, Sarah immediately set out to explore the squalid quarter known as Chinatown. Among other places she was taken to the Chinese theatre, and was presented with elaborate ceremony to the manager, who was also the principal actor. She assured him that then and there she desired to give an extempore representation to the friends who accompanied her, and to any straggling Chinese the manager cared to send in at ten cents admission. She promised that her performance would not last more than half an hour, and that it would be unique and original. The whim had seized her to have 'some fun,' as she put it, and it was agreed that the manager was to assist, if desirable, on the stage. They discussed the terms for some time, she demanding sixty per cent. of the gross receipts, and the Mongol refusing to pay more than forty. They jabbered away, she in French and he in Chinese, in the most serious and excited manner, everything each said having to be translated by an interpreter before it was understood by the other. The pantomime, acting, and by-play of the Chinaman were almost equal to her own, and delighted her so greatly that she clapped her hands enthusiastically, and demanded of her own leading actor, 'Mon cher, why can't you be as natural as that?' Terms being arranged, Sarah was conducted to a dressing-room, from which she soon reappeared clad in Celestial robes. Then she refused to begin her entertainment unless she received her money in advance—*a la* Patti, as she expressed it. So a collection was taken up from the persons accompanying her, and a few loungers who had looked in, which amounted to about, $2.50. Her fifty per cent. of the gross takings was handed to her, and she announced that she was ready for the orchestra to begin. When the Chinaman explained that the members of the band were absent, perhaps enjoying themselves at the opium dens in the neighborhood, she announced that she would be her own orchestra, and manufacture her own music. She had heard what was called by courtesy the band, several years before, when visiting San Francisco, and the illustrations she immediately gave of her powers of memory and mimicry were wonderful. She opened her mouth and let forth a volume of sound that imitated to the life the wailing, jumbled sounds, and wheezy, halting passages of a Chinese orchestra, which made the dozen or two Chinamen present hold their sides with laughter, and it is no mean achievement to make a Celestial laugh heartily. Then she sent us all into spasms of hilarity by executing what she termed a *danse de Pekin*, keeping up the sounds of the imaginary band at the same time. After this she seized a huge sword, swung it swiftly round her head, and made for the Chinese actor with whom she had negotiated. Her eyes gleamed, and she threw such energy into her manner that he retreated in actual fear. She made a tragic spring towards him, like a tigress, uttering a howl of simulated rage that caused the Mongol to leap from the stage, his eyes starting from his head in abject terror. Even the members of the company, who were used to her eccentric freaks and antics, rocked with laughter at this scene, which brought Sarah's Chinese performance to a satisfactory conclusion. If this *denouement* had been carefully rehearsed and arranged it could not have been droller or more effective. It cost me twenty-five cents to witness it, but it was well worth five dollars, for I shall never behold its like again. Sarah, after thanking the audience with mock gravity, in an imitation of Chinese sounds cleverly mixed up with French argo', retired with impressive dignity from the stage, and soon resumed her ordinary costume. After this performance, which would have exhausted any ordinary woman, she proceeded through the Chinese quarter, penetrating to the filthiest ill smelling corners, and insisting on the guide conducting her to holes and dives that are usually avoided by sightseers as too loathsome to explore. She purchased a cutlass at a shop that happened to be open, and as she went she flourished it in the face of every Chinaman she met. They evidently thought her mad, and suspected that the group accompanying her were her keepers. She darted up dark passages and blind alleys, and a dozen yards ahead of any one else, even of the guides; she tucked up her skirts and descended into aromatic dives from which her companions fell back, calling to them gleefully to "come on—the odors are lovely!" and altogether she led us such a wild dance that even the strongest of men were fatigued, and hoped she would desist long before she consented to forego any further explorations. And even then she seemed as tireless, fresh, and interested as when we first started out. It was now quite four o'clock in the morning, and Sarah was announced for two representations at the California theatre the next day—a matinee and an evening performance; but she was not ready to go home even then, but insisted on being shown through one of the daily newspaper offices. She went over the place, from press to composing room, and had matters she did not understand explained to her. She affected to weep over the low wages of the printers, declaring it was 'too leetle,' went into ecstacies of admiration over the gladiatorial proportions of one of the pressmen, to whom she presented the cutlass, and made a reporter happy for the rest of his life by delightedly calling me to observe his 'strong raisongblongs to Shakespeare.' All of these adventures occurred on a Friday night, or rather Saturday morning. Before parting she made us all promise to meet her on Sunday, when she did not act, at seven o'clock, to partake of a Chinese dinner. We all agreed, and at the most flamboyant restaurant in the Chinese quarter we promptly assembled and partook of an extraordinary menu. I need hardly say I merely tasted each dish rather than ate of it. The preserved eggs with the ducks' gizzards and the rice cakes and jellies were swallowable; but I couldn't for the life of me manage the oiled prawns and the pork chops. Sarah arose from the table and protested that French cooking was good enough for her, but she wished to astonish her stomach with a Chinese banquet. Whether she was any the worse for her daring gastronomic experiment or not I cannot say, for I left San Francisco the next day; but I am bound to confess that I didn't get the taste of the fried roofs of the mouths of pigs and the sharks' fins out of my mouth for a week."

GOLD DUST.

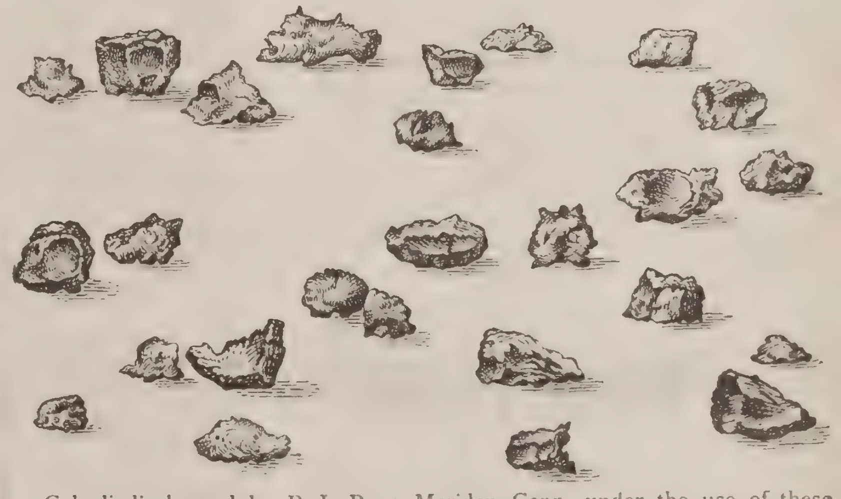
"Out of the fulness of the heart the mouth speaketh," so I want to speak of "Gold Dust." I have proved it to be so good that I want every women who has to work to know how much eaiser it will make their work. It is somewhat similar to other Washing Powders, but is much cheaper and more effective. When I got the first package, I emptied some into a pail and put it on the table to experiment with in any and every place where I would use soap. I have found it to be better than the best soap I ever used. When washing dishes it makes the water soft for the hands; silverware washed with it keeps brighter; tinware requires only about half the work to keep it shining; and last but not least, is the clean, sweet dishcloths which you can have with far less trouble than if soap is used. I had some stove zincs which were all specked from ashes or some other cause; I had tried every thing on them that I knew of, but one cleaning with Gold Dust was worth more than all the rest. And now a word about washing with it. I don't put my clothes asoak Sunday night, or any other night, but Monday morning I get breakfast and *eat it:* then I sort over the clothes and put them to soak in warm water, to which I have added a level tablespoonful of Gold Dust Washing Powder for each pail of water; next, I wash dishes, make beds, and so on, for about two hours; then I finish my wash by rubbing, boiling, sudsing and rinsing, as usual; but the rubbing is more in name than reality, except in a few badly soiled places; and I only let the clothes fairly boil up. I get my wash out in good time and the clothes are clear and white. It does not hurt my hands, so I will risk the clothes. Several months' use has only added to my appreciation of it for all kinds of kitchen and laundry work. Try it, sisters, and be convinced. Mrs. Eva Gaillard, Box 209, Girard, Pa.

BUFFALO LITHIA WATER,

FOR URIC ACID DIATHESIS, STONE IN BLADDER, Etc.



Calculi discharged by Dr. B. J. Weistling, of Middletown, Pa., under the use of the water. They are of the Uric Acid and Phosphate variety, resembling hempseeds, laminated, flattened, oval, smooth and fawn colored.



Calculi discharged by R. L. Roys, Meriden, Conn., under the use of these waters. These are of the Uric Acid and Oxalate of Lime variety. Dark brown, hard, studded with tubercles.

WATER IN CASES OF ONE DOZEN HALF GALLON BOTTLES, $5.00, F. O. B. HERE.

☞For Sale by all first-class Druggists, and Pamphlet sent to any address.

THOMAS F. GOODE, Proprietor,

☞Please mention the AMERICAN ANALYST.

BUFFALO, LITHIA SPRINGS, VA.

BUSINESS NOTES.

LAND-SEEKERS.

It will be of interest to those contemplating settling in the Northwest, to know that the choicest farming and timber lands in Wisconsin are tributary to the Wisconsin Central Lines. Settlers on these lands have all the advantages of healthful climate, good market facilities, abundance of fuel and building material, pure and sparkling drinking water, and other important benefits which cannot be enjoyed on the prairies of the West. No droughts, no cyclones, no grasshopper plague and no fever and ague. Now is the time to select choice lands at low prices. Wisconsin is considered one of the most prosperous States in the union. Located directly on the Wisconsin Central Lines in this State are the thriving cities of Burlington, Waukesha, Fond du Lac, Oshkosh, Neenah, Menasha, Waupaca, Stevens Point, Marshfield, Chippewa Falls, Eau Claire, New Richmond and Ashland. For tickets, time tables, maps and full information, apply to G. R. Fitch, D. P. A., Wis. Central, New York, or to Jas. C. Pond, General Passenger and Ticket Agent, Chicago, Ill.

◆ ◆ ◆

$100 REWARD $100.

The readers of this paper will be pleased to learn that there is at least one dreaded disease that science has been able to cure in all its stages, and that is Catarrh. Hall's Catarrh Cure is the only positive cure known to the medical fraternity. Catarrh being a constitutional disease, requires a constitutional treatment. Hall's Catarrh Cure is taken internally, acting directly upon the blood and mucous surfaces of the system, thereby destroying the foundation of the disease, and giving the patient strength by building up the constitution and assisting nature in doing its work. The proprietors have so much faith in its curative powers, that they offer One Hundred Dollars for any case that it fails to cure. Send for list of testimonials.

Address, F. J. CHENEY & Co., Toledo, O.
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One rounded teaspoonful of Cleveland's Baking Powder does more and better work than a heaping teaspoonful of any other. A large saving on a year's bakings.

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Knits everything required by the household, of any quality, texture and weight desired. A. M. LAWSON, 783 Broadway, New York.

Mention the AMERICAN ANALYST.

Girls.

By Helen Ekin Starrett, in *The Forum.*

"Thousands who are now in shops and other organized industries would really prefer work in homes, if only the heavy, grimy, malodorous, *clothes-destroying* work of cooking and laundering were not required and expected of them."

Well—if this is true there's a good time coming for girls and the mistress too; for women (by millions) are coming to know, that *Pearline* saves the clothes on your back as well as the clothes in the wash; the paint on your walls—the sheen of silver—the lustre of glass and reduces the labor—drudgery—health breaking—temper and comfort wearing work of washing and cleaning to almost nothing.

Besides—the girl—the mistress—or both—are better satisfied with the results. It cleanses—restores original colors—but hurts nothing, not even delicate skin—luxurious for bathing—be among the bright ones and use *Pearline.*

Beware Peddlers and some unscrupulous grocers will tell you, "this is as good as" or "the same as Pearline." IT'S FALSE—Pearline is never peddled, and if your grocer sends you something in place of Pearline, do the honest thing—*send it back.* 192 JAMES PYLE, New York.

PATENT KILN.—W. R. Close, a Bangor genius who has invented a successful automatic fog bell, announced that he has patented an improved lime kiln which will effect a saving of 75 per cent. in the amount of fuel used over those now in use at Rockland. He proposes to utilize the vast amount of heat which now escapes from the kiln chimneys in generating steam for heating and manufacturing purposes.

DUBIOUS SUPERIORITY.—England's great prosperity, over which the American Cobdenite become so enthusiastic, is well illustrated by the following statistics recently gathered: In Great Britain there are 700,000 criminals, 22,000 juvenile. The annual cost of liquors is $750,000,000, and there are 500,000 drunkards. Suicides last year numbered 2,297, and 2,157 were found dead; 10,000 children died from violence or neglect; 1,837,932 persons were in receipt of pauper relief of some kind, a proportion of about 1 in every 16 of the population. Of this number 507,660 were over 65 years of age, and as the total population over 65 years of age is 1,332,695, out of every 3 men in England who live to be 65 years old 1 is a pauper. In addition, over 3,000,000 people are so wretchedly poor that they can hardly be said to exist. This condition of things seems to justify Thomas Carlyle's description of Great Britain's laboring population, when he said: "British industrial existence seems fast becoming one huge poision swamp of reckless pestilence, physical and moral, a hideous living Golgotha of souls and bodies buried alive. Thirty-thousand outcast needle-women working themselves swiftly to death. Three million paupers rotting in forced idleness, and these are but items in the sad ledger of despair."

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The best and most economical "Stock" for Soups, Etc.

One pound equals forty-five pounds of prime lean Beef.

Send to us for our book of receipts, showing use of **ARMOUR'S EXTRACT** in Soups and Sauces.

ARMOUR & CO., Chicago.

The American Analyst Club.

In looking about us to see how we can best serve our subscribers we have been reminded of an opportunity by the frequent receipt of letters asking us to purchase different articles for our friends. When we have been able to comply with such requests we have been gratified to find that our purchases have been satisfactory, and at remarkably low prices, and we have therefore concluded to establish an

American Analyst Purchasing Club.

The only conditions of membership in this club is that of being a subscriber to the American Analyst.

Located in New York City, and able to buy large quantities at a time, manufacturers will be ready to sell us goods of known quality at the lowest cash prices, and we will thus be enabled to save for our members all middlemen's profits.

We do this extra work at extra labor and expense in order to add to the value of a subscription to the American Analyst, and thus largely increase our subscription list. We withdraw all premium offers, and substitute this American Analyst Club with its innumerable advantages.

From time to time, as arrangements can be made, the number of articles procurable through the club will be largely increased. Until we shall have a larger list to offer we shall be glad to give information as to cost of any specified article, and procure it when ordered, and cash is remitted. All letters of enquiry must enclose stamp for reply. Samples cannot be sent.

The American Analyst,
19 Park Place, New York.

WATCHES.

A LITTLE USEFUL INFORMATION.

Every one wants a watch, and there is no good reason why this want should not be supplied. By making large purchases for cash, the Analyst Publishing Company is now prepared to furnish its subscribers with almost any kind of watch made at less than the lowest wholesale price. All these watches, even the cheapest, have the watch safety pinion, tempered hair-spring, compensation balance, and are stem wind and and stem set—all modern improvements. All named movements and all adjusted movements are full jeweled.

CONDITIONS.

Now a word as to the exact conditions under which the American Analyst will procure these watches for its subscribers.

The American Analyst has no watches for sale. It has no lists or catalogues. It buys for subscribers as they order—merely to oblige them. It cannot buy cases with special patterns except at the regular prices. It sends nothing C. O. D. or on approval, and does not care to do this work except as a favor to subscribers, who can appreciate its value.

The American Analyst insures the safe delivery of each watch in perfect order. If not delivered in perfect order it must be promptly returned, and the insurance company will pay to us all expenses incurred. But it must be returned within thirty days. Any injury can be detected in that time, and after that time the buyer must be responsible for his oversight. A watch delivered in perfect order must be kept in order by the wearer. The American Analyst cannot guarantee that the wearer will do this, and any injury must be through his negligence and at his expense.

If a watch or case not named in the American Analyst is desired send a description, and the cost will be given.

Subscribers must be specific in stating what they want, and remit cash with order.

Address all orders and remittances to

The Analyst Publishing Company,
19 Park Place, New York.

QUALITY AND COST OF THESE WATCHES.

MEN'S AND BOYS' WATCHES.

The following are the prices for full-sized open-faced watches in silverine open-faced cases, screw back and screw bezel (front):

7 jewelled	$5 60
15 jewelled, nickel	10 30
Adjusted, nickel	12 65

Add $7 for Montauk and $10 for Monarch open-faced cases.

The subscriber may select his watch from either the Elgin or the Waltham factory.

The "named" movements of the American Waltham factory cost in open-faced silverine cases as follows:

P. S. Bartlett, adjusted	$12 65
Appleton, Tracy & Co., adjusted, gilt.	17 35
Appleton, Tracy & Co., adjusted, nickel	19 70
Crescent Street	24 40

Add $7 for Montauk case and $10 for Monarch open-faced cases.

The Elgin "named" movements in the open-faced silverine cases cost:

G. M. Wheeler, nickel	$10 30
H. H. Taylor, nickel, adjusted	15 00
B. W. Raymond, gilt, adjusted	17 35
B. W. Raymond, nickel, adjusted	19 70

Add $7 for Montauk and $9 for Monarch open-faced cases.

The foregoing will be furnished in engraved or engine turned gold filled HUNTING CASES at $10.50 *extra for Montauks;* $15 *extra for Monarchs.*

Two-ounce, open-face, solid gold, 14 carat U. S. assay cases, cost $30; three-ounce hunting cases cost $42, and 2½-ounce cases, either open or hunting, cost $36.

MEN'S WATCHES—SMALL SIZE.

The American Waltham Company alone make "named" movements 16 size. These are as follows, in Monarch, Crescent or Dueber hunting-case, full engraved:

American Watch Co., 24-jewelled	$100 00
American Watch Co., 16-jewelled	65 00
Riverside, nickel	35 00
Riverside, gilt	27 50
Royal, gilt	23 50

This is the exact Trust price to the jeweller. Open-faced cases average $3 less.

The Elgin factory makes the following movements in the 16 size, which cost in open-face silverine case as follows:

Seven jewels	$ 6 75
Thirteen jewels, gilt	10 75
Adjusted, gilt	15 75
Adjusted, nickel	17 75

Any 16-sized movement will be furnished in open-faced gold-filled engraved Montauks for $7 extra; Monarchs $10. In hunting cases, Montauks $10 and Monarchs $15.

SOME SPECIAL BARGAINS.

United States Walthams in the engraved Montauk hunting cases. $12.25 by registered and insured mail.

Boys' seven-jewelled, medium-sized (16) Elgin movements, cased in silverine hunting cases, for $7.60 each.

The cheapest fully adjusted man's watch is the celebrated Railway, in Montauk open-faced, gold-filled cases at $23.65 net. The regular price of the movement alone is $25.

The John C. Dueber, in hunting case full engraved, for $25. The factory price is $27.

LADIES' WATCHES.

These are in three sizes, but the 6-size is the better time-keeper, and the favorite size for women. All are hunting-case, stem wind, pendant stem set, safety pinion and tempered hair spring.

The Elgin factory makes the following in both 6 and 0 sizes at the prices annexed for solid 14 carat gold engraved cases:

7 jewels, gilt	$25.00
11 jewels, gilt	27.75
11 jewels, nickel	27.75
13 jewels, nickel	30.00
15 jewels, nickel	33.50
17 jewels, adjusted	43.50

In Montauk cases, $10 less; in Monarch cases, $8 less.

In the 6 size, if the subscriber will leave the choice to us whether it shall be an Elgin or Waltham movement, it is nearly always possible to purchase one or the other, so that the cost in a pretty Montauk case will be but $13.75, and in a Monarch engraved, $15.75. But the subscriber who selects for herself must pay the prices before named.

SPECIAL BARGAINS.

United States Waltham watches for ladies, 6 size, 7-jeweled, in Montauk engraved hunting cases, for $12 50, by registered and insured mail.

The cheapest lady's watch, nickel movement, that can be bought in a Dueber-Hampden, 6 size, 11 jewels in settings, nickel movement, in an engraved 20-year Dueber gold-filled hunting case. $14.75.

A full-jewelled lady's watch, Hampden nickel movement, in Dueber case, cost $18.50.

ADJUSTED WATCHES.

The Crescent Street movement is the finest and costliest full-sized movement made in the Waltham or Elgin factories. It is the best in the world, and equal to the old chronometers, costing $600. It is adjusted to the utmost extent of human ability.

The B. W. Raymond is "the pride of the Elgin factory," and the costliest full-sized movement made by it. It is adjusted every way, ranks second only to the Crescent Street, and its admirers give it equal honor.

The Appleton, Tracy & Company ranks with the Raymond. It took the grand prize at the last Paris Exposition against all comers as the most perfect watch exhibited. The Crescent Street and Raymond were not competing, but thousands of others were.

The H. H. Taylor and P. S. Bartlett are each adjusted-to-temperature watches, and very great favorites on account of their low price.

We hope to be able to add new and desirable articles to this list from week to week.

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The AMERICAN ANALYST has made arrangements by which its subscribers can obtain certain periodicals at reduced rates. These prices are bottom. Subscribers will save time by making sure that what they send for is included in the offer, and they will save loss if they remember that the prices are net. No publication will be sent for less than one year, and no order will be accepted from any but subscribers.

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Chicago Times	1 00	80
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Country Gentleman	2 50	1 75
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Independent	3 00	2 60
Judge	$5 00	$3 85
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New York Ledger	2 00	1 60
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Pansy	1 00	85
Philadelphia Times	50	45
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Popular Science Monthly	5 00	4 10
Poultry World	1 25	80
Prairie Farmer	1 00	75
Rural New Yorker	2 00	1 25
St. Nicholas	3 00	2 55
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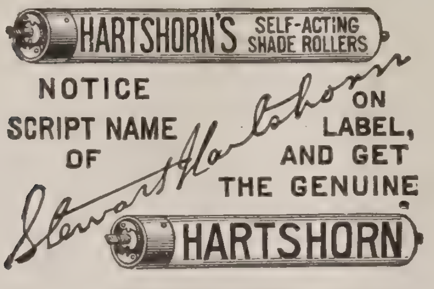

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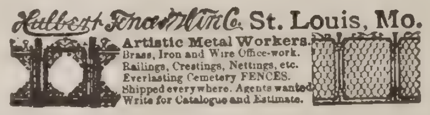

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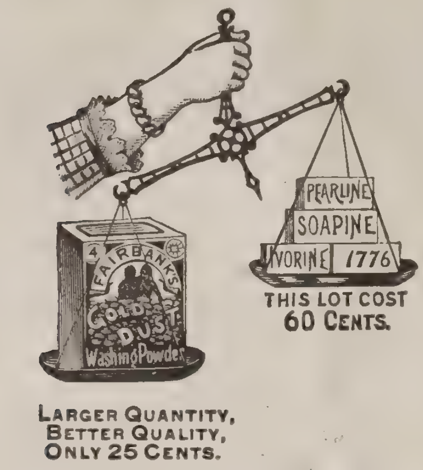
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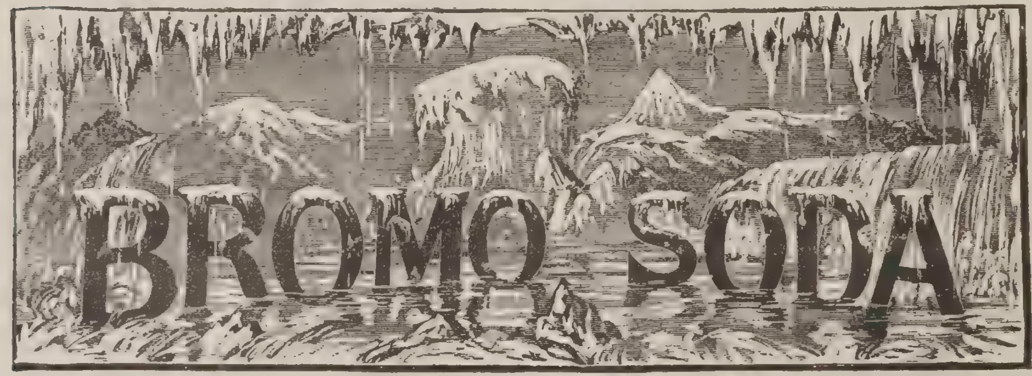

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CONTENTS.

Bananas 126
Bright Stories
  In His Stead 124
Cleaning Clothing 122
Domestic Dietetics 126
Editorials 121
  Harnessing the Cataract; The Food Exposition; Discouraging for Authors.
Fashion and Art 122
Pleasure 123
Ptomaines 123

HARNESSING THE CATARACT.

It has been often proposed, but never hitherto accomplished, to utilize the enormous water flow of Niagara Falls by converting it into mechanical power. The scheme has lately taken definite shape and is in a fair way for successful achievement. The vastness of the power Niagara presents to the eye has long made it one of the most interesting problems for the engineer as well as a fertile subject of speculation to every intelligent observer. The estimates of the total power of the falls vary in somewhat wide limits, but they all place it at several millions of horse-power, and it is not an extreme calculation which makes it twice as great as that of the total combined steam and water power at present employed in the whole United States. And yet, although the first rude sawmill was erected at the falls in 1725, there has not been, up to the present time, any adequate attempt made to utilize any considerable portion of this tremendous power. To do this it was obvious that a great outlay would be necessary to cut through the high, rocky banks, the required channels for the supply flow, utilization, and escape of the water at its lower level. Something was done in 1873, when the present hydraulic canal was constructed, affording 6,000 horse-power, running about a dozen esestablishments, principally flour mills, but so incomplete was the provision made for utilizing the full head of the water that the tail race of the present mills has, in many instances, a greater fall than that which is used to turn the wheels. The present Niagara Falls Power Company is making the first noteworthy effort for the development of the power of the falls on a large scale, although the proportion of the total power which will be utilized is so small a fraction of the whole that it is not expected to make a difference large enough to be perceptible in the flow of the river over the falls. The central feature of the work is a tunnel, 7,250 ft. long, starting from the river at just above the water level below the falls, and running under the village of Niagara, at a depth of about 200 ft. below the surface of the ground, the upper end of the tunnel being beneath a large tract of land the company has purchased adjacent to the river bank above the village. Over 1,400 acres of land has thus been acquired and laid out by the company in mill sites, and for the necessary surface canals, through which water will be supplied from the river to the various wheel pits, all of the latter being connected by lateral tunnels with the main discharge tunnel. A certain proportion of the power will be sold to mills controlling their own wheels, and delivering water into the tunnel, but at the central station the designs are at present limited to the generation of about 5,000 horse-power by compressed air, another one of 5,000 horse-power by electricity, with the possible extension of either one of these to the amount of 100,000 horse-power. It is the expectation of the company to make its first large contract for the delivery of power, at a distance from the falls, with the city of Buffalo, 3,000 horse-power being required for the lighting of the city. If the cost of transmission be within present expectations, the company will be able to furnish power at Buffalo at a much lower price than it is at present to be had at, and for a far larger field of usefulness than the mere lighting of the city. According to the most successful of all the recent efforts in the way of practically transmitting power electricity for a considerable distance, only about twenty-five per cent. of the power was lost in transmitting it by wire a distance of 108 miles. This degree of success was attained at the recent Frankfort exposition. And if power can be at present so supplied for a distance of 100 miles from Niagara, it would be but a rash judgment which would undertake to say that it might not be also, in the very near future, similarly brought as far as New York City, in a way to be utilized at far less expense than the present cost of steam power. It is expected that the company will be entirely ready to furnish power, to those arranging for its use, by taking water from their canals and discharging it into the tunnel, by October next, their first contract calling for the ability to turn wheels by this time.

THE FOOD EXPOSITION.

The food exhibition managed by the retail grocers of this city opened on the evening of March 7th at the Lenox Lyceum with every prospect of achieving as great a success as the similar show of last spring. The building is admirably adapted to the purpose of such a display, the vast auditorium giving abundant room for the attractive arrangement of booths in a series of consecutive circles, the outer one resting against the first tier of boxes. In addition to this the lower hall contained a similar arrangement of booths, and there were other highly attractive exhibits in the parlors on the upper floors. Throughout the tasteful, and, at times, extremely original decorations of the booths, the endless range of color of their contents, displayed in the most attractive forms, and the bright costumes and the pretty faces of the young women who preside over the different exhibits, and tempt willing visitors to taste the excellence of their wares, combine to form a scene of unusual brilliancy. The inauguration exercises were opened by Manager L. J. Callanan, who introduced L. N. Dreyer, the president of the union. The latter congratulated the society on the success which had attended the opening of the exposition, the object of which he said was threefold: First, to educate the people to the fact that pure goods of all kinds are the cheapest, because they are more healthy and go further than adulterated goods; second, to give the manufacturers, producers and wholesalers a place to display their goods and explain their good qualities; and, third, to bring the manufacturer, the producer, the retail grocer and the consumer together; educating the manufacturer to the necessity of manufacturing pure goods if he expects to keep his trade and reputation; the wholesale grocer that he must keep the best goods in stock, and the retail grocer that if he expects to succeed in business he must keep in stock only goods of the best quality, which he can unhesitatingly recommend to his customers. President Dreyer then introduced Charles A. Dana, who spoke of the excellent results accomplished by exhibitions of health products and of the popularity which they had achieved in recent years. Mayor Grant then formally announced the exposition open, and the crowd began to circulate through the halls and inspect and sample the various exhibits.

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DISCOURAGING FOR AUTHORS.

Experts are predicting that the books of to-day will fall to pieces before the middle of the next century. The paper in the books that have survived two or three centuries was made by hand of honest rags and without the use of strong chemicals, while the ink was made of nut galls. To-day much of the paper for books is made, at least in part, of wood pulp treated with powerful acids, while the ink is a compound of various substances naturally at war with the flimsy paper upon which it is laid. The printing of

SEE SOMETHING NEW ON PAGE 130.

two centuries ago has improved with age; that of to-day, it is feared, will within fifty years have eaten its way through the pages upon which it is impressed. A heartless publisher who threw out this hint added the sardonic comment that the question was highly unimportant to the great majority of authors.

CLEANING CLOTHING.

FRANK G. CARPENTER DESCRIBES WASHING IN FOREIGN COUNTRIES.

Every nation washes its clothes differently. Korean clothes washing is done without a fire. As I was carried through the country in a chair, swung between two poles by eight of these men dressed in white, I saw, from time to time, women squatting on the banks of a stream with piles of clothes beside them. The clothes had been ripped up for washing, and the different parts of the garments were washed separately, and laid out on the grass to dry. They washed by pounding rather than rubbing, and the women dropped the clothes into the stream and then laid them on stones and pounded the dirt out of them. When dry they carried them home on their heads, and the process of ironing, which made the music about which I was so curious, began. Korean ironing is done by means of round wooden sticks. The clothes are carefully folded and laid on a flat block of wood, and a women squats herself flat on the floor beside this, and pounds away on the clothes until she has made the fibre take on a polish equal to that of any Chinese laundryman. Often two women work together. They keep time as they play at tattoo on the block, and gossip away between the strikes. The Koreans use no soap in washing, and there is no starch put into the clothes. The labor is of the hardest kind, and the woman has not the satisfaction of knowing that she is going to wear the clothes herself. Her own garments are much less pretentious, as a rule, and the restrictions of her sex are such that had she good clothes she would not be able to show them to other men than those of her own family. The Japanese rip up all their clothes before washing. They sew the garments together with long stitches, and they are so made that any women can put her own dress together without trouble, and the average women remakes her house dress once a month until it is worn out. The Japanese washtub is about as big around as a family dishpan. It is not over eight inches deep, and it sits flat on the ground while the washing is done. The Japanese girl gets down on her knees, and scrubs the clothes of the family by rubbing them to and fro between her hands. She has no washboard, and a thin bar of Japanese soap two inches square is her only assistant in cleansing. I visited Japan in the summer, and I noted that the dress of the women, while washing, was decidedly scant. Some had no clothes on, to speak of, and I saw no signs of hot water being used. Each women had one or more ironing boards standing up beside her tub, and the Japanese women does not use a flatiron nor the clothes line. She spreads her clothing flat on these smooth, white boards, and they dry under the sun with a polish almost equal to that of the iron. You see these ironing boards everywhere in Japan. They are five feet long and eighteen inches wide and, where the clothes are ripped up before washing, they make them dry without a wrinkle, and they appear as stiff as though they were starched. The common clothes of the Japanese are very simple, and there is but little difference between those of the women and the men. The favorite color is blue cotton, with the extraordinary decorations of which the Japanese are so fond. The best clothes are reserved only for special occasions, and the wonderful silks and satins of Japan are, of course, not washed. I was much amused during my stay among the Siamese at Bangkok in watching the washing along the Menam river. Bangkok has about one hundred thousand people living in floating houses on this river, and the whole of the Siamese capital containing more than half a million, lives on the edge of the water, either on the river or on canals. The floating houses have porches, with steps leading down into the water, and the average Siamese dress consists of a strip about the size of a Turkish towel, and often, in fact, a Turkish towel, across the shoulders and a long waist-cloth which falls below the knees and is there pulled through from behind and tucked in at the waist in front. The Siamese men and women practically wear the same costume, and when they take a bath they do their washing. All are expected to wash their own clothes, and they step down into the water with their clothes on, and take them off and give them a good wringing when they get out. They have dry clothes ready to put on as they remove them, and you may see this washing going on at any hour in Bangkok. Many of the women dress in very light attire, and some of those who scull the boats on the river wear nothing above the waist. They have well rounded forms, and they are as straight as the oars they use. They are wonderfully supple, and this suppleness is cultivated by the people, and young girls are taught to bend their joints this way and that in order to increase it. On this account the scenes along the Menam river show you many beautiful forms, and a sculptor might find a model for Venus on every block. The washing of the clothing of the children of Siam and Japan costs but little, for the babies of both countries wear little more than a bib, and I saw many little girls of four and five whose sole attire consisted of a little metal disk as big as a trade-dollar, which was fastened by a string around the waist, while the Siamese boys get along very well with a string of beads and some yellow powder, which serves to keep away the mosquitoes. In the Straits of Malacca and in India the clothes washing is largely done by pounding the wet garments upon the stones of a stream. The washing is often done by men, and the Klings of southern India are frequently the washers. While at work they have nothing but a cloth around their loins. They are lean but muscular, and their skins shine like oiled ebony under the hot sun of the tropics. They lift the clothes up in the air and bring them down with a swing upon the stones, and woe unto the Englishman's shirt and duck pantaloons if they happen to be decorated with buttons. The washing in India is often combined with praying, and I saw thousands of women and men on the banks of the Ganges making their prayers and, after they were through, rubbing clean the clothes in which they had stood in the water while praying. The clothing of the common people of India is largely white, and in the case of many classes it consists of a long sheet which is wound about the form of the man or women, and made, I should judge, without very much sewing. The widows of India wear the plainest of cotton clothes, and they are not permitted to wash their clothes or change them for thirteen days after the death of their husbands. The Hindoos believe that the more miserable a man's widow is on earth, the happier will be the man in heaven, and the relatives of the deceased do all they can to injure the widow. When the husband is cremated, as is the custom in India, the cremation takes place near a river or tank, and the widow is shoved into the water, and made to stay there in her wet clothes until the dead body has been burnt to ashes. She is led home in her soaking garments, and is made to sleep in them on the bare ground. She cannot change these clothes until thirteen days after the funeral and for the rest of her life she is an outcast. In nearly all the countries of the Orient water is scarce. Wells are comparatively few, and India, Palestine, Egypt, and Turkey have their water carriers. The water in India and Egypt is carried in pig skins or goat skins on the backs of men, and water carrying is a regular profession. It costs too much to use a great amount of water so gotten for washing, and much of the laundry work is done in the streams. Along the banks of the Nile I saw many women washing, and men, half naked, here and there pounded the dirt out of clothes by beating them on the stones in the same way as I described the Klings as doing in India. I remember seeing men, stark naked, washing clothes in this way in the Nile at Asyoot, the capital of upper Egypt, and this was on the edge of a city of about fifty thousand people. Nearly all the water of Egypt comes from the Nile, and such washing as is done at home is with water which the women carry in great jars on their heads. They balance these jars perfectly, and walk along without touching them. I have seen a woman, with a heavy jar of water on her head and a baby on her shoulder, walking along without the least concern as to the falling of her burdens. The washerwomen of Europe are quite as curious as those of the Orient, and a great part of the washing is there done with cold water, and along the streams. Much of the washing of Paris goes on at the public washhouse on the banks of the Seine, and I remember the clothes washing which was to me one of the curious sights of Lyons. A hundred women, each with a basket of dirty linen beside her, were scattered along the banks of the river. Each woman had a basket to kneel in, and a big, flat stone in front of her. She dipped her garment into the river, and then laid it on the stone and rubbed it with a bar of soap the size of a brick. She then took a coarse, stiff brush and rubbed away at the cloth, until, it seemed to me, she must tear it in pieces. She next rinsed it and then again covered it with soap, and again rinsed it. She now pounded the garment with a wooden mallet for about five minutes, then rinsed, brushed, soaked, and pounded again. Finally, after about ten minutes of such work, she called the garment clean, and spread it on the stones to dry. After she had completed her work, each washerwoman tumbled her dry clothes into a big basket and carried it off on the top of her head. The drying of clothes is one of the troubles of the cities of the world. In New York you see them hung on ropes, reaching from one window to the other, or on the tops of the houses. I know a woman, in the fashionable part of Washington, who has the garments of her family floating from the top of her fourth story every week; and in Edinburgh you may see long sticks running out from the windows with a cross-piece nailed to their ends, and clotheslines tied to this and stretched from the cross-piece, parallel with the central stick, to the window. Upon these lines the clothes are hung to dry, and during parts of the week, as they drip down upon the pavement, you look up for rain but see only wet shirts and nightgowns. Among the strange sights of Scotland is the washing. The girls there use their feet instead of their hands for getting the dirt out of heavy clothing. They tuck their cheap, bright-colored dresses up above the knees, and in this way tread the dirt out. They are remarkably clean, and their method seems to be a successful one.

FASHION AND ART.

HOW THE MANUFACTURE OF KID GLOVES IS CONDUCTED.

The first thing to do is, of course, to remove the hair from the raw skins, and for this purpose lime is used, they being immersed from a fortnight to three weeks in pits containing water and lime. The skins are constantly turned and shifted about by workmen armed with long iron tongs, and when taken out it is found that the lime has loosened the cuticle of the skin, thus rendering the removal of the hair a more easy matter. From the lime pits the skins are taken to the unhairing room, where they are stretched on a sort of wooden block and are scraped with a blunt two-handled knife. This removes the hair. They are now taken in hand by the "flesher," who cuts off the tail, the head piece, and such portions of adipose matter as may still adhere to the skin. The waste is useful for the manufacture of glue and gelatine, the hair removed by the former process being used for mortar and for felt making. The skins now pass on to the "scudder," who removes any hair that may have hitherto escaped the knives of the previous operators. They are next left to soak in clear water, to remove all traces of the lime, and from thence they undergo a process of artificial fermentation, called by the French "mise en confit"—that is to say, they are placed in a mixture of warm water and bran, which not only removes any fleshy impurity from the skins, but also renders them soft and supple. Kid skins are not tanned like ordinary leather, such as is used for making boots or harness, by means of oak bark, but are immersed in a large revolving "drum," which contains a mixture composed of yoke of eggs, wheaten flour, alum and salt, and so enormous is the consumption of the former ingredient that at one factory in Chaumont no fewer than 4,000 eggs are needed every day. The skins are allowed to remain in this costly paste for rather more than an hour, the drum being kept revolving by means of machinery. They are next taken out and removed to the cellars for the night, and from thence are conveyed on the following day to the drying room, where they are subjected to a temperature varying from 140 deg. to 160 deg. The attendants in this room are clad in a garb similar to that of the peasantry of India, so intense is the heat; but they manage, nevertheless, to enjoy good health, and sometimes even to increase in weight. Each skin is hung separately on hooks, and thus they dry very quickly. This process leaves them somewhat hard, and they are next "seasoned," or "sammied," with cold water, and then stretched backward and forward over upright knives, shaped like a half moon. After being wetted again they are "shaved," a process requiring great dexterity. This is accomplished by means of specially constructed knives which remove the under flesh. The skins are now coated with a composition of flour, oil and yolk of eggs, which make them soft and pliable. They are then conveyed to the dye-house, being by this time ready for the preliminary operation of dyeing. Before being dyed the skins are trodden under foot for several hours in water. This process throws out of them anything which would be opposed to the action of the dye. Having been rinsed, the skins are now moistened with more yolk of egg, and are allowed to rest a day before they are dyed by the workmen, who, taking a brush dipped in ammonia, spread it over the skins, and then apply several coatings of the dye. For skins that are dyed on both sides of course another process is employed. The workmen place the skins in a large vat, and while treading them down pour in the coloring liquid. Those that are intended for black gloves show, after their first dip in the dye, a bluish tinge, but this is worked off until the skins present a brilliant and perfect black. This process is called "lustering," and is done by passing a sponge over the skins, which have dipped in a mixture of oil and soap. They are then stretched over rolls of flannel until quite dry. The skins which have been dyed are now subjected to a process known as "grounding," the object of which is to remove all roughness and render them thinner and more supple. They are next stored according to their quality and size and are passed on to the cutters, who cut them into the several detached parts of gloves. This operation may seem to the unskilled very easy, but it requires great judgment, for the workman has to allow for the natural stretch of the skin. The finished skins having been selected and mapped out by the sorters, are put over a frame looking like a deformed glove. These frames are so made that they represent the whole glove laid out unsewn. The gloves, with the thumbs duly fitted and put together, are placed in a press, after which they are sent to be punched by means of machinery. The cuttings left by the punching machines are picked with scissors by girls who are called "raffleuses," while those employed making the "fourchettes," or side pieces for the fingers, which are also cut out by the bunch, are called "fourchettiers." It is, of course, necessary that the "fourchettes" should match exactly with the other parts, and for this purpose "sorters" are employed to choose them. The edges of the gloves are refolded by machinery, and are then ready for sewing. In France the work of stitching is done mostly by hand, although there are some very ingenious machines invented to perform this operation. One firm alone employs no fewer than 4,500 women and girls for this branch. The fastenings are now attached by means of rivets, which are hammered by the girls called "riveuses." The glove has now been sewn and furnished with buttons. It only remains to straighten it by placing it on a glove stick. The gloves are then arranged in dozens, and being enveloped in paper bands are packed in card boxes ready to be despatched from the factory.

PTOMAINES.

THEIR NATURE AND CONDITIONS OF OCCURRENCE.

Dr. Thos. Darlington, writing to the *Mail and Express* on the alkaloids of putrefaction, says: Since in the case of Carlyle W. Harris the question arose as to whether or not it was possible to extract from flesh which has undergone the process of putrefaction an alkaloid substance and mistake it for morphine, a certain public interest has been awakened in the matter. Certain it is that in a celebrated trial in Italy the experts were unable to distinguish one from the other. For a long time it has been known that certain plants make alkaloids; thus deadly nightshade yields belladonna, and from belladonna is extracted the alkaloid atropia; monkshood yields aconite, and from aconite we get aconitia; the poppy, opium, and from that morphine, and so on. And if plant life produces alkaloids it seems but reasonable to suppose that animal life might also possess this power, and this conclusion has, to a certain extent, been found to be true. Such alkaloids as are manufactured in living tissues are called leucomains, while those that are produced in dead or putrefying flesh are called ptomaines. When vitality ceases, that is, when death takes place, certain phenomena follow in succession. First, there is loss of heat, then rigor mortis, followed by discoloration, odor, escape of gases and exudation of liquids. The last four processes take place as the result of the action of microbes, or bacteria. Putrefaction cannot take place without the action of this army of little workers. Complex substances are broken up by them in other substances that are less complex until only inorganic substances, carbonic acid water, and ammonia result. Thus there are many chemical products formed in the process of transition and these are the ptomaines. Ptomaines, then, are chemical compounds, alkaloid in character, produced in putrefying flesh by the action of disease germs. They vary, of course, in character according to the stage of decomposition. There are two classes of ptomaines—one liquid, volatile and having an odor distinguished chemically by containing no oxygen; the other class are solid, crystalline and contain oxygen. They are all alkaline and combine with acids to form bases. They have a cadaveric smell and a bitter taste. Many have been isolated and given names to distinguish them. Thus there are parvoline, collidine, neuridine, cadaverine, putrescine, muscarine, neurine, choline and many others distinguished only by their medical nomenclature. Ptomaines have been extracted from nearly all kinds of decaying albuminous material—from mackerel, horseflesh, ox, cheese, milk and from the human body. Some do not seem to be poisonous, while others are extremely so. Thus even a few milligrammes of neurine suffice to kill a cat. In their chemical action ptomaines and the vegetable alkaloids act very much alike. Some resemble conitine, others nicotine, morphine, strychnine, atropene and so on, covering nearly the whole list of the vegetable alkaloids. And the importance of this fact cannot be overestimated in making medico-legal investigations, more especially as there are undoubtedly many ptomaines as yet undiscovered, and it is possible that some of these may resemble even more closely the vegetable alkaloids than any yet found. They are of most importance to us, however, in the fact that under certain circumstances they are found in some of our common articles of food, such as sausages, milk, ice cream, etc., and not infrequently many people have been made ill by them, and at picnics wholesale poisoning has resulted from decomposed ice cream. In Arizona I have seen a whole family prostrated and seriously ill from eating fish which had undergone slight decomposition, and so violent was the poison that even the cat, which had also eaten it, came near dying.

PLEASURE.

ITS ESSENCE, THE FITNESS OF ENVIRONMENT TO MENTAL CONDITIONS.

Rightly understood, pleasure is the chief object of all human government—the art namely of making people pleased or happy; and it would not be less rational to condemn religion because of the cruelties that have been inflicted in its name, or art, because some good pictures have an immoral tendency, than to inveigh against pleasure because some people pursue it selfishly, or find it in unworthy objects. To enjoy rightly is one of the surest precepts of human happiness, and it is difficult for a layman to put his finger on any denunciation of pleasure, as such, in Old or New Testament. There is something of insincerity, something unmanly, in the conventional attitude assumed towards pleasure by professing Christians. We are constantly seeking it, yet we express abhorrence of pleasure-seekers; we profess to despise it, yet the whole effort of the nation is to obtain it. This contradiction of profession and practice arises in part from sheer hypocrisy, in part from imperfectly understanding the true nature of pleasure. Christians, it is true, are told to rejoice when men shall speak evil of them and persecute them, and this seems sometimes to be interpreted as an injunction to make themselves so ungenial and disagreeable, as to bring upon themselves the natural consequences of being disliked. But even such martyrs are not called on to resign all idea of pleasure for evermore; the enjoyment is postponed, "for great is their reward in heaven." Thorough though our persuasion may be, that ours is no continuing city, and that we are on the way to a better world, there is no merit in making our journey thither uncomfortable. What is the aim of all philanthropy but pleasure in the present? What is the promise of every religion but pleasure in the future? With what consistency can the honest believer undervalue pleasure when the Psalmist declares that "At the Lord's right hand are pleasures for evermore?" If, then, pleasure is a good and right thing, and therefore worth taking some trouble to secure, it is not wasting time to consider its true nature, and remark upon some of the common hinderances to its attainment, and to point out the common neglect of some of its purest sources. Pleasure, then, in the full meaning of enjoyment or delight, is indeed one of the most difficult subjects that can be submitted to analysis. Seek and ye shall *not* find it, unless your search is wisely directed. Often it eludes the most elaborate plans and costly preparations for its capture. Equally often it springs out unawares upon the wayfarer, when he is least looking for it, meets him with frankest countenance when its presence would be least suspected. Thus the ordinary scheme of social entertainment is devised to encourage that most precious of all earthly joys, congenial intercourse, and the guests come away wearied, while a chance meeting on a railway, or even in a dentist's waiting-room may fill the heart with gladness. The fact is, elaborate preparations are more likely to scare than to secure pleasure. In the expressive words of Mr. Dallas: "Pleasure seldom gives note of her coming. She comes like an angel, unseen, unheard, unknown; and not till she is gone, or parting from us, are our eyes open to what we have enjoyed." The nature of the object sought is not in itself of the essence of pleasure. There is, perhaps, no device of ease more consummately designed for its purpose than a modern bed. Yet to the bed-ridden what is this bed but Gehenna? Again, to the student—the genuine *helluo liborum*—books are all in all. How can one remain insensible to books as a source of pleasure? Nevertheless, not to mention the school-boy, in whose eyes books are but elaborate obstacles to the enjoyment of life, there are thousands and tens of thousands of educated men who prefer the scribbling of daily journalists to the treasures of literature, because desire, the gratification of which confers pleasure, has not been born in them. In fact, there is no such thing as objective pleasure; pleasure is a harmony, a fitting together, a fitting of an external object with a mood or want within ourselves. It is, to put it plainly, the fulfilment of desire, the gratification of an appetite not necessarily ignoble. In short, as Suckling says—

> "'Tis not the meat, but 'tis the appetite
> Makes eating a delight."

As Goethe said of beauty so it may be said of pleasure: It is a primeval phenomenon that eludes definition—a radiance shed from the presence of Him at whose right hand there are pleasures for evermore. The source of which, though we may speculate about it, we can never know. This much, however, it is in our power to do; seeing that pleasure is a sensation arising from the fitting of fulfilment to desire, and of condition to mood, we can encourage those desires and train those moods which conduce to the purest gratification. No pursuit perhaps confers as much pleasure as natural science. The pleasure of expanding knowledge has a boundless field for its gratification, and proof of the enduring quality of pleasure derived from knowledge of physical science may be had in the fact that no one is ever known to tire of it, or to fail in deriving pleasure from every new discovery. All this fund of exquisite pleasures so generally neglected may be drawn on by multitudes who spend their lives in the pursuit of pleasure by methods which experience shows them fail of the desired end. And what is true of Science is no less true of Art.

BRIGHT STORIES.

IN HIS STEAD.

HOW AN ACCIDENT MADE A HUSBAND THE INSTRUMENT OF JUSTICE.

Holt's name was synonymous with success. He was a man of boundless resource and commanding intellect. In his early years he had worked with unwearied perseverance, giving himself no rest until, through his law practice, he had amassed a fortune, the very mention of which commanded men's respect. He was never hampered or retarded by haste; each move he made was sure and advantageous; and if he had gained the reputation of possessing a heart that was in a constant state of repose, in the face of his success, men thought none the less of him. They knew that worthier men had failed, while he had gone triumphantly on to the alluring goal.

A half-hour of his company was as beneficial as a cold shower. The most loquacious curtailed his words and made them to the point under Holt's coldly critical eyes.

His office was considered the best law school in the city. His clerks disliked him thoroughly, but accorded him a meed of respect they gave no other man. He was impervious to their want of good-will; he did not care for their esteem; he exacted only the unconditional obedience he obtained.

No man came to the office late more than once. Holt's urbane hope that the late-comer's health was improving, and that he would soon be entirely recovered, did not pass current as genuine solicitude. But again, he never demanded a moment of their time after office hours; he was essentially a just man. There was no one ready or adroit enough to retort to his stinging satire, but the men were willing to bear it, for in his monetary dealings he was extremely liberal.

It was only after Holt's marriage, when he was nearing forty, that men drew nearer to him. They were glad to discover that he was not so invulnerable as they had supposed.

The world knew nothing of her until she came to them as Holt's wife, but soon after reports originated that her parentage had been enveloped in mystery, and that Holt had rescued her from the temptations that come to bitter poverty, and educated her at his own expense. Her faultless face and manner seemed to give the lie direct to the rumor that had gained ground, and she took her place with unquestioned supremacy.

Holt lavished upon her a fund of love that most men would have found sufficient for a large family. It was almost pitiful to watch him while with her. For her sake he forced himself to go into society, which, hitherto, he had considered unrelieved martyrdom. He threw open his house to their acquaintances because she was a young woman, and he was determined not to weary her, but he deemed it his home only on those evenings when they were alone. He chafed under the yoke he put around his neck, but she was never allowed to become aware of it.

She was, perhaps, the only person who did not fear Holt. Those who thought she had married him from a feeling of gratitude were compelled to change their belief on seeing her sweet graciousness to him. She bewildered the world, as well as Holt, by her smile.

She insisted upon his taking care of his health, and walked to the office with him nearly every morning, saying that if left to himself he would ride, and so have no exercise. She would call for him in her coupe at five, and sometimes alight and admonish King, the junior partner, for not relieving Holt of more of the routine work. Holt gave himself over to the luxury of being taken care of without complaint.

Holt was seated alone in his private office, having ended the last audience he intended to grant that afternoon. It had been a most trying and fatiguing day, but his face showed no sign of weariness. A knock came at the door, and Holt, recognizing his wife's form outlined against the glass, arose and opened the door for her. At that moment his face was almost redeemed from plainness by his smile.

"I am about to disappoint you," he observed, motioning her to be seated; "I am called across the bay on important business, and shall not be able to take you out as arranged. You know how much I regret this, but it is imperative that I go."

"Why can not Mr. King go in your stead?" she demanded, with evident displeasure at his default. "I am sure you could save yourself many a task by using him in your stead. You are too unsparing of your own time and self."

Holt looked at her in amusement. "Do you not know you are the only one who thinks me thoughtful of others? They would tell you, and truthfully, that I am going because I know I can provide against accidents and defeats more surely than can King. Perhaps, in time, I may lose, through your influence, some of my hardness. Besides, King has work that will keep him here until close on to midnight. If it were not so, I should appoint him my substitute, that you need not stay home."

"Will he stay here all alone?" she asked, feigning an interest in the affairs of the law firm.

"All alone. Perhaps the only one in the building. There is no need to shiver for King; there is no danger."

"But there must be danger, all alone in this immense building. I am glad you are not to stay," she laughed, looking up at him tenderly. "I think I shall tell Mr. King he had better bring some one along for company."

"He is out, at present. I must send you home now, for I have some instructions to leave. You well know how much I dislike to disappoint you."

"I am disappointed," she murmured, "for I thought we should enjoy the evening together, but I am going to bear it bravely. Shall you be late?"

"It is possible I may be home by twelve, certainly not before."

Holt saw her to the carriage, and watched her drive away. On re-entering the building, he turned his ankle, and found it difficult to mount the stairs. He made no mention of it in the outer office, but directed them to tell Mr. King he wished to see him at once.

It was some ten minutes later that King entered. Holt was an intellectual giant; King a physical giant. Beside Holt, who was gaunt and yellow, his health and good looks were so evident as to seem almost an impertinence.

"You will have to go to Mr. Rodney's, King. I have again turned my ankle. Make haste, and you will be able to take the next boat. I shall take your place and complete those documents this evening."

"Let them go until morning," urged King; "I will manage to get down early enough to finish them before they are needed. I can see the pain you are suffering."

"We have no time for condolences just at present," interrupted Holt, wincing under King's compassionate looks; "I shall finish the papers to-night."

"I met Mrs. Holt as I came back to the office, and she told me of her disappointment. Are you going home?"

"I shall go home to dine and come down later. You might join me here on returning from Rodney's, when we can go into the matter fully."

Again impressing upon him the wisdom of going home to dinner, King left the office hurriedly, scarcely hoping to make the boat.

Holt arose, preparatory to going home. He repressed an exclamation of acute pain as his weight came down on his ankle. If he went home he doubted his being able to come down again. As his wife did not expect him, he decided to stay at the office and commence on King's work.

He walked to the door, telling the chief clerk, who was then the only one left in the office, that he would stay a time longer, but made no mention of his intention to spend the evening at the office.

He waited in his own office until he heard the man leave. Then he locked the outer doors and went to King's office, which was a small room, seldom used because it did not connect with the others; to enter, it was necessary to go out into the passage-way.

Holt lit the student lamp that stood on the table and began his work.

The bells sounded for six, and Holt remembered he had been too busy that morning to interrupt his labors for luncheon; he wondered what his wife would say if she knew he was still at work without thought of eating. It is not altogether unpleasant to have somebody interested in one's welfare.

At half-past seven he neatly folded the last document and pushed them to one side; he knew that what he had accomplished in the two hours would have taken King double the time.

Thinking of the three hours that still remained before King's possible return, he almost regretted having directed him to meet him at the office.

He took from his pocket a jeweler's box containing a string of rubies; it had caught his eye that morning and he had found time to purchase it, though not for luncheon. He turned the lamp low and leaned back in his chair, holding the rubies against his face. No sound broke the stillness, except, now and then, the gnawing of some rat in the wainscoting.

Suddenly he leaned forward in his chair, intently listening. He detected a soft footfall in the corridor—it was the step of one who was moving carefully, so as to conceal all noise. He heard a key inserted in the lock of the door leading to the office, then it was withdrawn. He turned the lamp so low it emitted only a mere spark, and, pulling open the drawer of the table, drew out King's revolver.

The person in the hall came with but one object, and it is fair to suppose that the man who purposes committing burglary is desperate enough to shoot to save himself or his plunder. Holt was prepared for his entrance, and determined to act at once without parley, for his accident, to some degree, crippled him, and he did not propose to let go his hold on life of his own volition.

He had not long to wait. The steps paused at his door; then the key turned in the lock, and the door swung open. Holt saw the man's face was masked by some dark stuff, and pulled the trigger. The man fell forward, and Holt turned up the light. The burglar had fallen on the other side of the table, and Holt walked towards him. He moved slowly, remembering his injured foot; he was in no hurry to view his victim.

And then he saw it was his wife! the black lace scarf had fallen away, exposing her perfect face.

She had grown nervous because he had not come home to dinner, and had come down for him, and he had shot her. He carried her over to the couch that stood in one corner of the room. As her head touched the pillow she raised her hand to his face, murmuring, "Rob, Rob, why did you hurt me?"

Holt stepped back in paralyzed fear—she was calling him by King's name.

She was here in King's office, and, because of the sudden change of plans, he had discovered her. He staggered blindly to a chair. The last few months unrolled themselves before him, and he cursed his own lack of penetration. He brought his hand down on the table with such force the rubies danced madly on their slender thread of gold, throwing off their dazzling lights. He wished dully they were diamonds; their pigeon-blood red hurt his eyes. He took them up fiercely, as if to crush them, and they cut his hand.

He looked up at her cry. She was leaning forward, watching him with dilated eyes.

"Why are you here," she cried? "you must not kill him. You must be satisfied with my death. Promise me, you will not kill him."

He had had no thought of King, but, on the instant, seeing her anxiety for him, he decided on his mode of action.

"No, I shall not kill him," he responded, coldly.

"You frighten me," she whispered. "If you only would not sit there smiling to yourself. You have no right to complain—I made you happy for a year."

"So you did," agreed Holt; "it was very good of you. I would have laid down my life for you. Would King?"

She did not know what course to pursue. Finally she said, "Yes." Still he sat, holding the rubies, calmly smiling. "Take me home."

"Your home is with King; and, as you know, this is his office."

"You cannot mean to leave me here!" she exclaimed.

"Why not? You are nothing to me, and King will be here in the course of two or three hours. He was very urgent in pressing me to go home to dine; I see the reason now. Unfortunately, however, I had turned my ankle, and, as it was rather painful, concluded to stay here."

"You regret it now?" she breathed. "You are sorry the veil is torn from your eyes?"

He caught his lip in his teeth. What she said was true—he regretted being turned out of his fool's paradise.

He caught up his gloves and top-coat.

"What are you doing?" she questioned. "You are not going to leave me here alone."

"If you are afraid, I can stay with you for a time longer—I have no very pressing engagement. I can stay with you until the end, if you prefer it, and shortly after, King will probably be here."

"Are you going to let him find me here?" she asked, waiting his answer with suspended breath.

"Of course. You said he would be willing to die for you—he shall have the chance. The bullet lodged in your breast is from King's revolver, and you are in King's office. He will come in and fall down beside you and try to warm you to life by his caresses, and, perhaps, his clothes will not be quite spotless when he arises. Knowing the extent of his guilt, he will not be as collected and rational as I, and will stay with you, futilely searching for some plausible excuse to give the world for your presence. No one is aware I am here, and it will be a very clear case against him."

She drew a shuddering sigh. "I will not die yet. I shall call for help."

"No one heard the shot," he reminded. "Don't move; you will only hasten the end," he cautioned, as she fell on her knees beside him. "You must not come nearer me. My apparel must not be disordered when I reach the club."

"You might save me yet," she pleaded, her hand on his knee; "save me, and I will make you forget this night. You cannot wish your name to be dishonored. Men will laugh derisively when they know the one woman you loved played you false. You will know no peace if you let me die. Even suppose he is accused and found guilty, it will not bring me back to you. You will be afraid of the night, sitting there in the house haunted by my presence. Before I came, you were employed in making your name and fortune, but, without me, your triumphs will be only Dead Sea fruit. Take me home," she implored, in the suasive voice that had never before been denied aught.

Holt drew back with distaste from her touch. When she had finished, he observed: "Your position is uncomfortable; had you not better go back to the couch? It is King's favorite lounging-place."

Looking at him she foresaw her ultimate defeat, but did not desist from begging him to take her away.

Once he laughed low, showing her the rubies, saying she deserved great credit for the cleverness with which she had deceived him, but otherwise he made no response. She cried for help once, but was answered only by the echo of her own voice as it rang through the lofty building.

Her voice died away from sheer exhaustion. The pool of blood on the floor grew larger, and one tiny stream slowly wended its way to Holt's chair and he watched it with unconcerned interest.

An hour passed; then she ceased to plead for King or for a drink of water. When Holt looked up at last, she lay back on the couch—dead!

Carefully picking his steps, he walked over to the table and took up the papers which he intended to put in his own desk, and destroyed all trace of his presence. He looked searchingly at himself, but he could find no sign of the struggle through which he had passed.

He drew out his watch. It was shortly after nine—it was time he reached the club. He turned the light low, and, as he did so, glanced over at her. She seemed to be watching him. How he hated her. He had shown it by the torment he had made her endure.

But she had made his happiness—the only happiness he had ever known. Now he would go home to the lonely house, bereft of even the memories of that time.

Surely she moved. He walked toward her and grasped her by the arm, crying: "You are to come home with me—"

He waited for a second in sickening dread, then, thrusting the rubies before her, added: "Don't make believe you don't hear me. I forgive you—see, they are for you."

He released his hold; he saw she was dead.

He must go—he had told her he would go to the club. He passed his hand in front of his eyes, as if he had grown suddenly blind. The lights would glare up there—it was so quiet and dark in the little room.

Some one was coming up the steps, whistling. It was King, the man she had loved. He clutched the revolver, leveling it toward his forehead. No, he would not disfigure himself—there had always been too much contrast between them.

The cheery whistle sounded louder, clearer. Holt aimed at his heart and fired. Of him it had been jestingly said he had no heart.

The whistle died away.

* * *

Electrical Signal.—"I have lots of fun in a quiet way," said an ex-telegraph operator to an *Electrical Review* representative. "I was dining at the Murray Hill Hotel the other night, and while waiting to be served I began to tick on a plate with my knife. In a few minutes I got an answer in the same way from the other side of the room. Conversation was maintained for some time, and finally names were exchanged. I stood up and, looking across the room, saw an old side partner of mine whom I had not met for years."

Manganin.—Manganin is an alloy of copper, nickel and manganese, and has remarkable electrical properties. Its resistance hardly varies at all. Even at a range of temperature varying from 15 deg. to 97 deg. C. the mean variation of resistance is only from 20 to 30 millionths of the original value. The resistance slightly decreases with the rise of temperature. Its specific resistance is very high, as much as 0.42 ohm per centimeter. These properties render manganin a superior material for the construction of artificial resistances, for which purpose it is now extensively used.

Candy Talk.—Among American confectioners there is now prevalent what is known as the monochromatic craze, and which consists of everything in the shop window, including sweetmeats, boxes, ribbons, and other decorations being in one tint. The effect is said to be "very charming." In Alabama they chew the tassels of the fir-trees as a substitute for gum, and this reminds an American paper of the old adage: "Be fir-chewers and you will be happy." A medal should be promptly awarded to that Yankee print for the production of the toughest pun on record.—*London Confectioner*.

Railroad in the Holy Land.—The first railway to Jerusalem will, it is reported, be opened in the spring of the coming year. It is a short line, running only from Joppa, the nearest port on the Mediterranean, and intended to accommodate the growing passenger and other traffic between that place and the Holy City. The work of construction is being carried out by a French company, who began laying down the line in April, 1890. It is stated that over eight hundred vessels of various kinds annually land 40,000 persons at Joppa whose destination is Jerusalem. On the completion of the railroad tourists will be able to buy a return ticket from the port to Jerusalem for twenty francs.

Complication of a Safety Lock.—The company which has distributed weighing machines through the streets of all the principal cities has just bought the right to use a certain lock on the money pouches of its machines, for which it will pay the inventor the sum of $50,000. This is a safety lock, and its purpose is to prevent robbery of the machine by the employes who are entrusted with collecting the earnings of the silent money-makers daily. There are 20,000 of these machines now in use in the United States and the company is getting ready to put 10,000 more on the market. When a penny is dropped in the slot it will roll into an iron box and there remain until the collector calls during the day. The collector will be furnished with a seamless bag, the metal mouth of which he will insert into an orifice in the cash box. There is a registering lock in the mouth of this bag, the registered number of which is recorded in the company's office before the collector receives it. Inserting the bag properly he turns the key which he has just one-quarter turn. This releases a concealed key in the bag, which is guided into a keyhole in the cash box, and the money rolls into the collector's pouch without his being able to touch it. A third quarter turn withdraws the concealed key and the last turn releases the pouch, with the contents of the cash box intact.

DOMESTIC DIETETICS.

SPECIALLY PREPARED, FROM PRACTICAL TESTS, FOR THE LADY READERS OF THE "AMERICAN ANALYST."

SEASONABLE FOOD.

March.

MEATS.—Beef, mutton, ham, kidneys, liver, venison, sausage, pork.

GAME AND POULTRY.—Grouse, hare, pigeon, chicken, duck, turkey, geese.

FISH.—Bass, cod, crabs, eels, carp, catfish, flounder, halibut, herring, lobster, mackerel, mussels, oysters, perch, pike, rock-fish, salmon, smelt, whitefish.

VEGETABLES.— Artichokes, beets, beans, cabbage, carrots, celery, garlic, lettuce, onions, parsley, parsnips, potatoes, shallots, spinach, squash, tomatoes, turnips.

FRUIT.—Apples, bananas, grapes, oranges.

PRACTICAL RECIPES.

NEW ORLEANS GUMBO.—Cut up a good-sized fowl and put it in the soup-pot with a piece of fresh beef, a small spoonful of lard and an onion cut in pieces; cover with cold water, and cook until the meat falls to pieces; then add a hundred oysters with their liquor. Season to taste. It should be quite mucilaginous when served.

CREOLE FISH CAKE.—Cut off the flesh of any kind of fish from the bones, and put the bones, fins and heads, to stew for gravy, with a little pepper, salt and herbs for seasoning. Mince the fish very fine, and mix with it some fine bread crumbs, parsley, pepper and salt; wet with a little gravy, and bind with the beaten white of an egg; add a spoonful of melted butter, form into the shape of a cake, sprinkle on both sides with crumbs, and fry a pale brown.

DUCKS WITH WINE SAUCE.—Quarter two good-sized ducks and fry them in butter until brown; then pour the grease from the pan and sprinkle the pieces of duck with flour; add a cupful of soup stock or gravy, half a cup of red wine, a small bit of onion, a few sweet herbs and an anchovy. Cover the pan closely and stew for quarter of an hour; then take out the herbs, dish the duck, let the gravy stew down to a thick cream, pour it over the duck, garnish with lemon and serve.

BEEFSTEAK PIE.—Cut a pound and a half of beefsteak into small pieces, and put with it half a cup of water, three tablespoonfuls of catsup, three hard-boiled eggs cut in pieces, a pint of oysters, salt, pepper and nutmeg. Butter a baking dish, fill it with this, cover with a rather rich biscuit dough, and bake to a good brown.

BAKED SWEET POTATOES.—Bake your potatoes in a covered tin dish until soft; then peel them and lay them on a hot pan, and bake again until they are a fine brown. Serve them at once.

BREAKFAST EGGS.—Boil half a dozen eggs from twenty minutes to half an hour. Toast some thin slices of bread, butter them and lay them on a hot platter; make two cupfuls of cream sauce, spread a spoonful of the sauce on each slice of toast, mash the egg yolks through a sieve and chop the whites up fine; put the egg on the toast, cover with more cream sauce, put in a hot oven for a moment, and serve garnished with parsley.

SALTED ALMONDS.—Shell your nuts, pour boiling water over them, let them stand for a moment, pour the water off and pour more boiling water on; then drain them and the skins will easily slip off. Melt a teaspoonful of butter in a broad tin pan, put the almonds in, mix up so that they are all slightly buttered; put the pan in the plate-warmer, and let it stay there in a gentle heat for two or three hours until the nuts are a pale brown. They will then be crisp and evenly cooked; take them from the oven, and sprinkle them plentifully with salt.

THE BANANA..

SOME INTERESTING FACTS ABOUT THIS DELIGHTFUL TROPICAL FRUIT.

The banana goes back to the earliest days. Alexander's soldiers, as Pliny says, joined the sages of India, seated in its shades and partaking of the delicious fruit. Hence the name "sapientum" given the plant, which likewise bears the name of Jupiter's fair daughter, Musa. Now, it has been shown that the banana is of Malayan origin. How did it get to India and to South America and Mexico? The feet of birds have borne seeds a full ten thousand miles, while the cocoanut floated well nigh the world around in the great ocean of currents. But the banana has no seeds, nor has it a casing like the globular cocoanut to float it around over the waters. Then it must have been carried by man. It is significant that the Aztecs had traditions of visits by people over the seas, while there was to confirm it an admixture of the religion of the Brahmins in their own theology. Would you think that the despised banana would actually step forward to prove that before Columbus was, or Leif Ericson ever had an existence, some swarthy denizens of the Old World had migrated across the waters? Manilla rope is made in the Phillipine Islands of the stem of the banana. This stalk, which usually grows to be six inches in diameter and from fifteen to twenty feet high, has a very valuable fibre, from which are woven beautiful textile fabrics. Many of the finest India shawls and wrappers worn by ladies of fashion are manufactured from this fabric. So, too, an excellent article of paper is made from it. But are no varieties of bananas wild? Yes; some have been found in Ceylon, Cochin China and the Phillipines. These, of course, have seeds, but they are inferior to the long, cultivated varieties. The banana is cultivated by suckers, and it is in this way that the literal plant perpetuates itself indefinitely. In Central Africa you may find thousands and thousands of plants that literally have in them the germ and life of ten thousand years' duration. The banana belongs to the lily family, and is a developed tropical lily, from which, by ages of cultivation, the seeds have been eliminated, and the fruit for which it was cultivated greatly expanded. In relation to the bearing qualities of this plant, Humboldt, who early saw the wonders of the plant, said that the ground that would grow ninety-nine pounds of potatoes would also grow thirty-three pounds of wheat, but that the same ground would grow four thousand pounds of bananas, consequently the ratio to that of wheat is one hundred and thirty-three to one, and to that of potatoes forty-four to one. The banana possesses all of the essentials to the sustenance of life. The savage of the sea isles and the jungles owes what he has of physical strength to this food. Wheat alone, potatoes alone, will not do this. When taken as a steady diet it is cooked—baked dry in the green state, pulped and boiled in water as a soup, or cut in slices and fried. I do not know whose beauty I admire the most, the majestic cocoa palm, with its heavy crown of close fringed leaves, or the graceful banana, with its great leaves, which are six feet long and two feet wide. The leaves of the banana are tender, and the strong winds of the tropic—the hurricanes—soon tear the leaves in strips, thereby adding to their grace and beauty. The banana is a fruit that beast and bird, as well as man, are fond of, and the owner, when he lives in a sparsely settled country, must needs protect his plantation by a fence of some thorn plant.—*Phar. Era.*

OXYGEN, HYDROGEN AND NITROGEN.—A. Leduc finds that the densities of the three gases are within less than 1-10,000 part: hydrogen 0.0695; oxygen 1.1059; nitrogen 0.9720. From these values the mean centesimal proportion may be reduced as 23.235 by weight and 21.026 by volume. According to these experiments the atomic weight of nitrogen would be 13.99 and that of oxygen 15.905.

ANANIAS ADVERTISING AGAIN.

Life is altogether too short to notice all the various misstatements that are published, but there are two which have lately appeared that deserve a little of our attention.

The first is: The Royal says "the U. S. Government endorses Royal baking powder."

The truth is that: The U. S. Government does not endorse any baking powder; it is not the business of the Government to boom a private enterprise.

The second: A Royal advertisement states: "Last year (1891) the Royal Baking Powder Co. sold to the U. S. Government over 80,000 pounds of baking powder—enough to supply both army and navy."

The truth about this is that: The Royal Co. did sell to the Indian Department 80,000 pounds of its ammonia powder at less than 20 cents a pound. This was for the Indians; not a pound of it went to the army or navy. The fact is, the baking powder bought for the U. S. Army at every purchase since January, 1891, has been Cleveland's, and the proposals specify that baking powder offered must be "equal in quality to Cleveland's."

While on the subject we may as well refer again to a foot-note in our last article, in connection with a statement of the Royal, which was as follows:

The Royal states that it is shown by the U. S. Government, the Canadian Government, Ohio and New Jersey Food Commissions, to be superior in strength, etc.

The reports thus referred to are the Ohio Report, page 9; New Jersey Report, page 87; Canadian Government Report, page 16; and show that such statements are simply false. Averaging the actual figures of the official reports, Cleveland's baking powder is 4½ per cent. stronger than the Royal.

BUSINESS NOTES.

ANOTHER VICTORY FOR CLEVELAND'S.

On March 4th the contract for supplying the U. S. Army with baking powder was again awarded to the Cleveland Baking Powder Co. This makes the sixth consecutive order for Cleveland's Baking Powder from the Government, and now the proposals specify that baking powder offered must be "in quality equal to Cleveland's."

That is commendation that speaks volumes.

INGLUVIN.

W. R. Warner & Co. desire to send to any physician a sample of this remedy wherever they have a patient resisting all other treatment for sickness in Gestation, Marasmus, Cholera Infantum, for which it has been found to be almost a specific.

HORSFORD'S ACID PHOSPHATE.

Useful in all forms of Dyspepsia and Seasickness. Dr. Price, of the White Star S. S. *Germanic* says: "I have prescribed it in my practice among the passengers travelling to and from Europe, in this steamer, and the result has satisfied me that if taken in time, it will, in a great many cases, prevent seasickness."

THE ELECTRIC LIGHTER.

One of the most delightful of the minor accessories that electricity furnishes to the household is the newly invented "Electric Lighter." This is a beautiful ornament for the parlor, dining room or chamber, always instantly responsive to a call for light and of valuable service in other ways to the family. It is operated by pressing the little button seen at the top of the centre rod, when the light instantly appears at the opening under the ornament upon the upper band. It is made of highly polished nickel plate, is but six inches high and occupies only six square inches on the table or mantel. Its construction is so simple it can be readily taken to pieces and as easily readjusted to working order. It needs no wires or connections, the current of electricity being generated by chemical action within the cylinder. It is perfectly safe, always secure, and a child can operate it. The material used in the battery is sold by every druggist, and a charge costing but 10c. is sufficient to keep it in constant service for thirty to sixty days. With usual care it will last a lifetime, and if it should become disabled by an unfortunate tumble, any damaged part can be replaced at trifling expense. Its construction is so handsome and ornamental it will readily find its place among the bric-a-brac of the choicest apartments, and is easily portable from room to room. It will be found a most desirable companion for the merchant or lawyer in his office, the professional man in his study, the student in his lodgings, as well as the housewife, and its neatness and quick responsiveness will recommend it to all. It is manufactured and sold by the Barr Electric Manufacturing Co., at Nos. 17 and 19 Broadway, New York. The price is $5, a veritable trifle when its beauty and service are considered Though originally designed simply for a lighter it has been found practicable to add several useful accessories. A medical coil with hand electrodes can be readily attached, by which either gentle or sharp electric shocks can be given to a member of the family afflicted with Nervous Affections, Rheumatism, Neuralgia, Lumbago, Sciatica, Headache, etc. This attachment can also be connected by wires to the doors and windows of the house, thus providing the homestead with a complete and perfectly reliable electric burglar alarm, or if in a city, it can be connected with a street wire to the nearest police station. The price of the medical coil is $3.50. Another adjunct is the call bell, which is also easily adjustable, and operated by pushing down the central rod, as in a dinner table or call bell The price of this, with 100 feet of wire, is but $1.52

$100 REWARD $100.

The readers of this paper will be pleased to learn that there is at least one dreaded disease that science has been able to cure in all its stages, and that is Catarrh. Hall's Catarrh Cure is the only positive cure known to the medical fraternity. Catarrh being a constitutional disease, requires a constitutional treatment. Hall's Catarrh Cure is taken internally, acting directly upon the blood and mucous surfaces of the system, thereby destroying the foundation of the disease, and giving the patient strength by building up the constitution and assisting nature in doing its work. The proprietors have so much faith in its curative powers, that they offer One Hundred Dollars for any case that it fails to cure. Send for list of testimonials.

Address, F. J. CHENEY & Co., Toledo, O.
☞Sold by Druggists, 75c.

BRILLIANT STRUCTURE.—In the Electricity Building at the World's Fair, Chicago, there will be 40,000 panes of glass—or more than any other Exposition structure. This building will be especially conspicuous at night, as owing to its extensive glass surface, the brilliancy of its electrical exhibit will be strikingly visible from the outside.

EVAPORATED GOLD.—Gold melts at from 2016 deg. Fahrenheit, so it is stated by good authority. But it evaporates and passes off at much less than a melting heat, and also if held in a molten state for any considerable time before it is passed into an ingot. Soon after the San Francisco mint went into operation, the United States inspector visited it to take stock, and there was about $160,000 of a shortage. This amazed every one, and arrests were threatened for theft. Finally some one suggested that evaporation had caused it, and that it had gone up chimney. So some one climbed up, and upon examination, it could be seen in scrolls of gold lining on the slate, where it had evaporated as it came in contact with the air. The slates were all taken off, also from a church roof and other buildings near; these were ground to powder and the gold saved; so was also the furnace and chimney brick, and, after all that could be profitably saved in San Francisco, the dust was sent to the Philadelphia mint, and worked over more closely, and then the dust was all sold to French chemists and shipped to Paris and worked over again. More than one-half the deficiency was saved.

INGENIOUS DEVICE.–A very ingenious device has been introduced that will prove of great value to steel manufacturers. In the formation of cast steel ingots, especially those containing a large proportion of carbon, it is common for the shrinkage of the metal, when poured into the ingot mould, to form a cavity or cavities in the upper end of the ingot, and, if such cavity be exposed to the atmosphere, its walls become speedily oxidized and in that condition are incapable of welding closely. The new idea is to chill the top of the casting and then turn the ingot upside down before it is solidified. The cavity then forms in the other end of the ingot, where its walls are fully protected against the oxidizing influences of the atmosphere. The moulds are arranged in such a manner that the cavity is formed in a stud or projection at one end of the ingot. In order to protect the metal first poured in from hardening too rapidly a cup of refractory material is placed in the bottom of the mould.

SAFETY OMNIBUSES.—An arrangement for preventing the overturning of omnibuses and other road vehicles in case of the breakage of a wheel or an axle, or of the drawing of an axle box, was recently put successfully through its trials. The invention consists of four supports attached to the axle, one being placed just inside of the four wheels. Each support has at the bottom a small solid wheel or roller which normally is about an inch above the road surface. Upon either of the wheels coming off the support next to it comes into play, and then the vehicle runs upon the three remaining wheels and one of the small wheels. In the recent trials an omnibus fitted with the safety appliances and having all four wheels loose on the axles, was filled with passengers inside and out it was then driven about at good speed on rough places in the roadway and over tram rails in zigzag fashion until one or more of the wheels came off, when it was driven back to the starting point without the pace being slackened. A number of runs were made, all the wheels in one instance coming off, and the omnibus returning on the rollers only. No violent shock was experienced on a wheel coming off, nor was there in any case serious lurching, even when on a sidelong slope. It is stated that the experiments were in every way successful, and so far show that the appliance fulfils its intended purpose.

Exhaustion

Horsford's
Acid Phosphate,

A most wonderful remedy, of the highest value in mental and nervous exhaustion.

Overworked men and women, the nervous, weak and debilitated, will find in the Acid Phosphate a most agreeable, grateful and harmless stimulant, giving renewed strength and vigor to the entire system.

DR. EDWIN F. VOSE, Portland, Me., says: "I have used it in my own case when suffering from nervous exhaustion, with gratifying results. I have prescribed it for many of the various forms of nervous debility, and it has never failed to do good."

Descriptive pamphlet free.

RUMFORD CHEMICAL WORKS, Providence, R. I.

Beware of Substitutes and Imitations.

CAUTION:—Be sure the word "Horsford's" is on the label. All others are spurious. Never sold in bulk.

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One
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Baking Powder
does more and better work
than a heaping
teaspoonful
of any other.
A large saving on a
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BAKING POWDER

A pure cream of tartar powder.

Used in the U. S. Army and by teachers of Cookery.

Cleveland's is the standard, it never varies, it does the most work, the best work and is perfectly wholesome.

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Often take a better and higher view of life and humanity, when relieved of digestive derangement. It is aptly said that "no man ever died a glorious death with disease below the diaphragm." Use ARMOUR'S PEPSIN TABLETS for indigestion and dyspepsia.

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10 Spruce St., New York.

BEET SUGAR.—In 1887 there was but one beet sugar refinery in the United States, situated at Alvarado, Almeda County, Cal. In that year there were but 400,000 pounds of sugar produced. In 1888 the total had increased to 3.600,000 pounds. The following year it nearly doubled. In 1891 California turned out 13,000,000 pounds, and Nebraska and Utah 6,000,000 pounds each.

PETROLEUM PRODUCTION.—Petroleum production in the United States in 1891 surpassed all previous records. The output was 50,150,000 barrels, against 46,000,000 in 1890 and 35,163,000 in 1889. In 1891 Pennsylvania, New York and West Virginia produced about 34,500,000 barrels; Macksburg less than 400,000 barrels; Lima about 14,500,000 barrels; California 250,000 barrels; Colorado 325,000 barrels, and the rest of the country 50,000 barrels.

NEW LUBRICANT.—An improvement in the preparation of lubricants is described by Krause, a German chemist. A soap, formed by treating wool grease with alkaline lye, is dissolved in water and filtered, and to this a solution of alum or other alumina salt is added, the result being the formation of a brown precipitate, and this is called aluminum-lanolate. With this substance, when dried, lubricating oils of any viscosity desired may be produced by dissolving it in fluid mineral oil.

GOOD FOOD.—No end of people suffer from bad food and do not know it. They do not get nourished. The food is often more than sufficient in quantity, but is very deficient in quality, and appears to be cooked by persons absolutely without sense. Cooking schools ought to be multiplied and those who suffer in pretentious places from cold food which ought to be hot, and tasteless beef which ought to be good, should speak out, so that the steward and managers will remember that their customers are disgruntled, and never mean to come into the place again until things are changed.—*Post Graduate.*

STRANGE CHANGE.—The prophetic transformation of "swords into ploughshares and spears into pruninghooks" is realized in the present use of the remains of the American man-of-war Chesapeake, captured in 1812 in battle with the British frigate Shannon. The vessel was taken to England and sold to a miller, John Prior, of Wickham. Mr. Prior built a new flour mill from the timbers of the Chesapeake, and it is said the mill is in existence to-day, making good money for its owner. There may not be so much "pomp and circumstance" about it, but grinding flour is a more useful occupation, after all, than carrying powder and shot.

BEDOUIN BREAD.—The Arabs must surely have originated that old proverb about all human kind eating its "peck of dirt." Lillie Hamilton French writes: "The Bedouin is, as every one knows, a wanderer in the desert, and therefore never long enough in one place to have a regular home. much less an oven; so he can bake bread only when he chooses to stop and build himself a fire. One can hardly object to that, but one does mind a little the way in which he does it, for the Bedouin is not very tidy. He not only puts his dough directly into the coals, but takes it out every few minutes to beat it, and dust it, using the very same stick with which he has just been beating his camel. When his bread is done, as might be expected, it is none too good; it is both gritty and unpalatable."—*The Helper.*

JOULE'S LAW DEMONSTRATED.—An experimental demonstration of Joule's law has been furnished by Professor Robert Spice, of Brooklyn. The method employed is to send a current through a known resistance, immersed in a known quantity of liquid, and also to immerse in the same liquid one set of junctions of a small thermo battery connected with a galvanometer. The other set of junctions are immersed in another vessel in a known volume of the same liquid, in which is another known resistance. If both quantities of liquid are heated by the current to the same temperature, the galvanometer will remain at zero, but not otherwise. The results of the experiments show that the rise of temperature of the liquids is proportional to the electrical energy expended.

MORTALITY OF THE HUMAN RACE.—The annual mortality of the whole earth may be estimated on the ground of recent statistical results at about 33,000,000 of persons, which constitutes an average of 91,554 deaths per day, 3,730 per hour, and consequently sixty-two per minute. The average length of human life is thirty-eight years. One-fourth of the human race dies before attaining the seventh year; one-half before attaining the sixteenth year, or in the course of this year. But one person among 10,000 attains the age of 100 years, while one among 500 attains ninety; one among 100 attains sixty. Married people live longer than the unmarried. Among 1,000 persons who have reached the age of seventy years, forty-three belong to the clergy or political class, forty to the agricultural class, thirty-three are workmen, thirty-two are soldiers, twenty-nine are lawyers or engineers, twenty-seven are professors, twenty-four physcians.

Subscriptions $1 per year. Now is the time to subscribe.

LAND-SEEKERS.

It will be of interest to those contemplating settling in the Northwest, to know that the choicest farming and timber lands in Wisconsin are tributary to the Wisconsin Central Lines. Settlers on these lands have all the advantages of healthful climate, good market facilities, abundance of fuel and building material, pure and sparkling drinking water, and other important benefits which cannot be enjoyed on the prairies of the West. No droughts, no cyclones, no grasshopper plague and no fever and ague. Now is the time to select choice lands at low prices. Wisconsin is considered one of the most prosperous States in the union. Located directly on the Wisconsin Central Lines in this State are the thriving cities of Burlington, Waukesha, Fond du Lac, Oshkosh, Neenah, Menasha, Waupaca, Stevens Point, Marshfield, Chippewa Falls, Eau Claire, New Richmond and Ashland. For tickets, time tables, maps and full information, apply to G. R. Fitch, D. P. A., Wis. Central, New York, or to Jas. C. Pond, General Passenger and Ticket Agent, Chicago, Ill.

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The material to charge the Battery can be obtained at any drug store at a cost of Ten Cents, and will run 30 to 60 days.

Any part can be replaced at a cost not exceeding Ten Cents. Aside from its use as a Lighter this apparatus does away with the use of matches and the dangerous results and disagreeable odors arising from same.

We have taken especial care in the manufacture of these Electric Lighting Batteries; they are handsomely constructed in nickel plate and highly ornamental, and will take a prominent place among the bric-a-brac of Reception Rooms, Parlors, etc.

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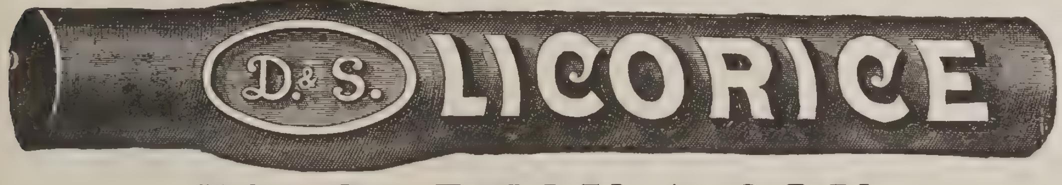

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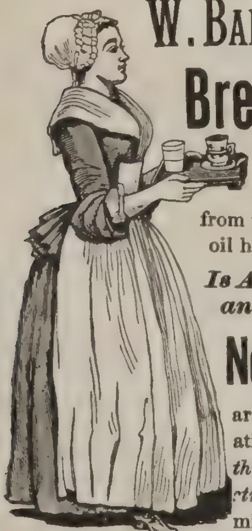

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In looking about us to see how we can best serve our subscribers we have been reminded of an opportunity by the frequent receipt of letters asking us to purchase different articles for our friends. When we have been able to comply with such requests we have been gratified to find that our purchases have been satisfactory, and at remarkably low prices, and we have therefore concluded to establish an

American Analyst Purchasing Club.

The only conditions of membership in this club is that of being a subscriber to the American Analyst.

Located in New York City, and able to buy large quantities at a time, manufacturers will be ready to sell us goods of known quality at the lowest cash prices, and we will thus be enabled to save for our members all middlemen's profits.

We do this extra work at extra labor and expense in order to add to the value of a subscription to the American Analyst, and thus largely increase our subscription list. We withdraw all premium offers, and substitute this American Analyst Club with its innumerable advantages.

From time to time, as arrangements can be made, the number of articles procurable through the club will be largely increased. Until we shall have a larger list to offer we shall be glad to give information as to cost of any specified article, and procure it when ordered, and cash is remitted. All letters of enquiry must enclose stamp for reply. Samples cannot be sent.

The American Analyst,
19 Park Place, New York.

WATCHES.

A LITTLE USEFUL INFORMATION.

Every one wants a watch, and there is no good reason why this want should not be supplied. By making large purchases for cash, the Analyst Publishing Company is now prepared to furnish its subscribers with almost any kind of watch made at less than the lowest wholesale price. All these watches, even the cheapest, have the watch safety pinion, tempered hairspring, compensation balance, and are stem wind and and stem set—all modern improvements. All named movements and all adjusted movements are full jeweled.

CONDITIONS.

Now a word as to the exact conditions under which the American Analyst will procure these watches for its subscribers.

The American Analyst has no watches for sale. It has no lists or catalogues. It buys for subscribers as they order—merely to oblige them. It cannot buy cases with special patterns except at the regular prices. It sends nothing C. O. D. or on approval, and does not care to do this work except as a favor to subscribers, who can appreciate its value.

The American Analyst insures the safe delivery of each watch in perfect order. If not delivered in perfect order it must be promptly returned, and the insurance company will pay to us all expenses incurred. But it must be returned within thirty days. Any injury can be detected in that time, and after that time the buyer must be responsible for his oversight. A watch delivered in perfect order must be kept in order by the wearer. The American Analyst cannot guarantee that the wearer will do this, and any injury must be through his negligence and at his expense.

If a watch or case not named in the American Analyst is desired send a description, and the cost will be given.

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MEN'S AND BOYS' WATCHES.

The following are the prices for full-sized open-faced watches in silverine open-faced cases, screw back and screw bezel (front):

7 jewelled	$5 60
15 jewelled, nickel	10 30
Adjusted, nickel	12 65

Add $7 for Montauk and $10 for Monarch open-faced cases.

The subscriber may select his watch from either the Elgin or the Waltham factory.

The "named" movements of the American Waltham factory cost in open-faced silverine cases as follows:

P. S. Bartlett, adjusted	$12 65
Appleton, Tracy & Co., adjusted, gilt.	17 35
Appleton, Tracy & Co., adjusted, nickel	19 70
Crescent Street	24 40

Add $7 for Montauk case and $10 for Monarch open-faced cases.

The Elgin "named" movements in the open-faced silverine cases cost:

G. M. Wheeler, nickel	$10 30
H. H. Taylor, nickel, adjusted	15 00
B. W. Raymond, gilt, adjusted	17 35
B. W. Raymond, nickel, adjusted	19 70

Add $7 for Montauk and $9 for Monarch open-faced cases.

The foregoing will be furnished in engraved or engine turned gold filled HUNTING CASES at $10.50 *extra for Montauks;* $15 *extra for Monarchs.*

Two-ounce, open-face, solid gold, 14 carat U. S. assay cases, cost $30; three-ounce hunting cases cost $42, and 2½-ounce cases, either open or hunting, cost $36.

MEN'S WATCHES—SMALL SIZE.

The American Waltham Company alone make "named" movements 16 size. These are as follows, in Monarch, Crescent or Dueber hunting case, full engraved:

American Watch Co., 24-jewelled	$100 00
American Watch Co., 16-jewelled	65 00
Riverside, nickel	35 00
Riverside, gilt	27 50
Royal, gilt	23 50

This is the exact Trust price to the jeweller. Open-faced cases average $3 less.

The Elgin factory makes the following movements in the 16 size, which cost in open-face silverine case as follows:

Seven jewels	$ 6 75
Thirteen jewels, gilt	10 75
Adjusted, gilt	15 75
Adjusted, nickel	17 75

Any 16 sized movement will be furnished in open-faced gold-filled engraved Montauks for $7 extra; Monarchs $10. In hunting cases, Montauks $10 and Monarchs $15.

SOME SPECIAL BARGAINS.

United States Walthams in the engraved Montauk hunting cases. $12.25 by registered and insured mail.

Boys' seven-jewelled, medium-sized (16) Elgin movements, cased in silverine hunting cases, for $7.60 each.

The cheapest fully adjusted man's watch is the celebrated Railway, in Moutauk open-faced, gold filled cases at $23.65 net. The regular price of the movement alone is $25.

The John C. Dueber, in hunting case full engraved, for $25. The factory price is $27.

LADIES' WATCHES.

These are in three sizes, but the 6-size is the better time-keeper, and the favorite size for women. All are hunting-case, stem wind, pendant stem set, safety pinion and tempered hair spring.

The Elgin factory makes the following in both 6 and 0 sizes at the prices annexed for solid 14 carat gold engraved cases:

7 jewels, gilt	$25.00
11 jewels, gilt	27.75
11 jewels, nickel	27.75
13 jewels, nickel	30.00
15 jewels, nickel	33.50
17 jewels, adjusted	43.50

In Montauk cases, $10 less; in Monarch cases, $8 less.

In the 6 size, if the subscriber will leave the choice to us whether it shall be an Elgin or Waltham movement, it is nearly always possible to purchase one or the other, so that the cost in a pretty Montauk case will be but $13.75, and in a Monarch engraved, $15.75. But the subscriber who selects for herself must pay the prices before named.

SPECIAL BARGAINS.

United States Waltham watches for ladies, 6 size, 7-jeweled, in Montauk engraved hunting cases, for $12 50, by registered and insured mail.

The cheapest lady's watch, nickel movement, that can be bought in a Dueber-Hampden, 6 size, 11 jewels in settings, nickel movement, in an engraved 20-year Dueber gold-filled hunting case. $14.75.

A full-jewelled lady s watch, Hampden nickel movement, in Dueber case, cost $18.50.

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The Crescent Street movement is the finest and costliest full-sized movement made in the Waltham or Elgin factories. It is the best in the world, and equal to the old chronometers, costing $600. It is adjusted to the utmost extent of human ability.

The B. W. Raymond is "the pride of the Elgin factory," and the costliest full-sized movement made by it. It is adjusted every way, ranks second only to the Crescent Street, and its admirers give it equal honor.

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The H. H. Taylor and P. S. Bartlett are each adjusted-to-temperature watches, and very great favorites on account of their low price.

We hope to be able to add new and desirable articles to this list from week to week.

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The seed of this Pepper was obtained from Central America, and by careful cultivation in Louisiana for many years has been so improved in strength, flavor and aroma, as to have become a new variety of Red Pepper, superior to all others. The pulp is so handled as to retain all the flavor, strength, aroma and color of the ripe fruit, and to keep unimpaired in any climate. It excites the appetite, promotes digestion, and is pronounced by connoisseurs to be the finest condiment in the world. For medicinal purposes it recommends itself by its purity, strength and diffusible form.

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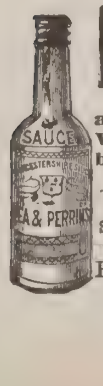

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CONTENTS.

Bright Stories.
A Strange Wooing 136
Domestic Dietetics 138
Editorials 133
Storage Batteries ; A Pessimist's Idea ; Food and Brain Work ; The October Exhibition.
Electrical Progress 134
Erratic Genius 138
Florida Fruits 134
La Grippe 138
New Coins 137
Pickles 135

STORAGE BATTERIES.

An editorial writer in the *Electrical Review* takes a hopeful view of the future prospects of storage batteries. Their improvement in this country, he says, has been greatly hampered by the uncertainty which has existed regarding the ownership of storage battery patents. The prolonged litigation in the courts and the natural distrust of investors has prevented its introduction on a large scale and, consequently, has deprived the manufacturer of the benefit of a use of the cells in everyday work, and to show the defects and indicate a remedy. The present outlook now is that peace will soon prevail in this field, that the war dogs will be called off, and business become the chief aim and end. We then expect to see a very extensive use of the storage battery in special lines, and a marked improvement in the general efficiency of the cell itself. Accumulators have found a much larger employment in Europe than here, owing mainly to the facts above stated, and the field of their use is widening very materially. They have made a very excellent record recently at the Chelsea (England) Electricity Supply Company's station, in increasing the economy of output of the station by enabling the engines to work at full load, whilst in operation at all, thus getting their maximum efficiency. The losses due to the use of the batteries of accumulators were, of course, quite appreciable, but the economy obtained by using the engines at full load, it is stated, considerably outweighs the losses of transformation in the battery. This field alone is a very wide one and, should further experience prove the tests of the Chelsea Company, will do much to assist the central station manager in raising his generating plant to its most economical point of operation. There is much to be done in making the storage battery commercially a perfectly efficient tool, but we believe that much can be done and will be done by the genus "Yankee," when it comes the proper time for him to take the matter up in earnest.

A PESSIMIST'S IDEA.

There is nothing new in the proposition that the editors of country newspapers as a class are afflicted with chronic impecuniosity. The explanation is now going the rounds of the press, especially emphasized, of course· by the journalists of the rural districts, that the reason of their poverty is because they are not mean enough to grow rich. According to this authority, in order to become wealthy it is only necessary to trust nobody, to befriend none, to get everything and save all you get; to stint ourselves and everybody belonging to us ; to be a friend to no man and have no man for our friend ; to heap interest upon interest, cent upon cent ; to be mean, miserly and despised for some thirty years, and riches will come as sure as disease and disappointment. And when pretty near enough wealth is collected by a disregard of the dictates of the human heart, at the expense of every enjoyment save that of wallowing in filthy meanness, death comes to finish the work. Country editors prefer to remain poor, live happy and die happy.

FOOD AND BRAIN WORK.

An abuse that tends to the injury of brain workers is excessive eating. A writer in the *Medical Mirror* recalls to mind several active brain workers who suddenly broke down, and fancied that it was due to brain fatigue, when, as a matter of fact, it was due to overstuffing of their stomachs. The furnace connected with mental machinery became clogged up with ashes and carbon in various shapes and forms, and as a result disease came, and before the cases were fully appreciated, a demoralized condition of the nervous systems was manifested, and they laid the flattering unction to their souls that they had indulged in mental overwork. Hard work, mental or physical, rarely ever kills. If a mild amount of physical exercise be taken, and a judicious amount of food be furnished, the bowels kept open in the proper manner, the surface protected with proper clothing, and the individual cultivates a philosophical nature, and absolutely resolves to permit nothing to annoy or fret him, the chances are that he can do an almost unlimited amount of work for an indefinite length of time, bearing in mind always that when weariness comes he must rest, and not take stimulants and work upon false capital. The tired, worn-out slave should not be scourged to additional labor. Under such stimulus the slave may do the task, but he soon becomes crippled and unfit for work. The secret of successful work lies in the direction of selecting good, nutritious, digestible food, taken in proper quantities, the adopting of regular methods of work, the rule of resting when pronounced fatigue presents itself, determining absolutely not to permit friction, worry, or fretting to enter into his life, and the cultivation of the Christian graces, charity, patience, and philosophy.

THE OCTOBER EXHIBITION.

Arrangements are rapidly being completed for the big Food Exposition to be held at Madison Square Garden, New York, under the auspices of the Food Manufacturers' Association. The railroads have responded in the matter of low rates for visitors to New York at that time. Through the kind offices of Postmaster Van Cott, a branch post-office will be established at the Madison Square Garden during the Exposition, for the accommodation of the thousands of out-of-town visitors and the exhibitors, who will want to have their mail delivered at the Garden. Telegraphs, telephones, express and messenger service will be found there, as also a bureau of information, where strangers can learn all they want to know about hotels, restaurants, boarding-houses, rooms to rent, as well as in regard to departure of steamships, steamboats and railroads, and the price of tickets for the same. It is believed by the management that at least half a million people will visit the Exposition, many of whom will come from distant points expressly for that purpose. The consumer and dealer will both visit the Exposition, many of the latter coming as delegations of retail grocers on an excursion to New York. The Board of Directors of the Manufacturers' Association comprise E. C. Hazard (E. C. Hazard & Co.), Read Gordon (Gordon & Dilworth), Alphonse Biardot (Franco-American Food Co.), George P. Tangeman (Cleveland Baking Powder Co.), B. J. Shafer (Joseph Burnett & Co.), W. G. Dean (W. G. Dean & Son) John Holmes (N. Y. Biscuit Co. N. Y.), E. C. Rich (E. C. Rich & Co.), Edward Elsworth (The Clover Mills), A. D. Rohrer (C. J. Van Houton & Zoon), N. R. Cottman (Alex. Eyquem), James Chambers, Williamsville, N. Y., and Daniel Browne.

SEE SOMETHING NEW ON PAGE 141.

ELECTRICAL PROGRESS.

A PROJECT TO RUN CARS AT A RATE OF ONE HUNDRED MILES AN HOUR.

The latest electrical scheme is for an electrical railway between Chicago and St. Louis. The following is from the prospectus of the Chicago & St. Louis Electric Railroad Co., working under the patents of Dr. Wellington Adams: "The proposed road will be operated from one central station, located at the mouth of a coal mine somewhere near the centre of the road. The railway company will operate this mine by means of electric mining locomotives, electric drills, electric cutters, and electric lights, which will greatly cheapen the present cost of the ordinary system of mining coal. The possibility and economy of this method of mining has already been established beyond dispute. The company will sell the good coal that it mines at a handsome profit and use only the waste dust or slack to run the engines which develop the power for operating the mine and road, in connection with its distributing system of light and power for consumers along the line of the road. At the present time, such dust and slack is not only valueless, but has to be hauled away at the expense of the mining company. The road will be divided up into twenty-five sections of ten miles each, which will constitute a complete block system, making it impossible for any two cars to run at a high speed upon any single section at the same time, thus making collisions impossible. There will be a complete block signaling system by means of incandescent electric lights, with telephonic communication between cars upon the same section, whether running or standing still. The road will be illuminated by incandescent electric lamps for one mile ahead and one mile behind every car while running. It will be built in a practically straight line, and as far as possible will avoid grade crossings of other roads. At all grade crossings, whether wagon or railroad, a red electric light will be displayed, and an electric bell rung for two minutes before it is time for the train to pass. It is intended to ultimately construct four tracks—two outside tracks for local traffic and high class freight, while the two inner tracks will be used exclusively for through passenger traffic, mail and high class express. The through cars will not stop anywhere between the two terminal cities between which they run. Spurs or branches will be run, connecting the large cities along the line of the road with the main through tracks, and from these cities individual through cars will run to and from the cities of St. Louis and Chicago without stop. Ultimately a street will be run along the sides of these tracks, along which dwelling-houses and stores will be built. On both sides of these avenues the land will, ultimately, be laid out in building lots one hundred feet front by two hundred feet deep, giving an area of half an acre to each lot. These lots will be bought by people from town seeking the healthy air of the country, and pleasant homes within quick and cleanly access of the city. Back of them they will have the open farm lands, and in front of them the boulevard with the electric railway, telephone and electric light, practically uniting Washington Ave., St. Louis, with Michigan Ave., Chicago, by one grand electric highway or boulevard, along which the farmer may secure electric light and power for pumping, ploughing, thrashing chopping and mixing fodder, shelling and grinding corn, and harvesting at night in case of emergency; and the rural resident may secure electric lights for the illumination of his dwelling, and electricity for heating and cooking, and electric power for domestic purposes. Along this road there will ultimately be a constant stream of travel. The population will be scattered out into the country, and the centres of trade and business relieved of their surplus, leaving more room for business establishments near the great centres of trade—taking out of the great bustle and crowd of the city those who are not immediately engaged in trade, and leaving room for those who are. The result will be of incalculable benefit to the whole population, and land holders throughout the district through which the proposed road will traverse. It will bring into use and market a large amount of real estate hitherto of but a little value. Either of the three routes which this road proposes to take between St. Louis and Chicago will be at least thirty-three miles shorter than the shortest of the existing steam routes. The standard schedule time of all through cars will be one hundred miles per hour. The trip from St. Louis to Chicago can, therefore, be made in from two and a half to three hours. It will be unnecessary to travel at night, therefore no through passenger cars will be run after 9 o'clock P. M., the tracks being reserved at night for high class freight, express and mail. This does away with the necessity of running Pullman cars, and the expense to the company attendant thereon, as well as to the travelling public. No man will care about travelling at night when he can travel in the daytime over a cleanly road which will land him so quickly at his destination. Farmers along the line can build cheap side switches with light rails which will enable cars to be run directly to the doors of their barns and granaries, to facilitate the transportation of the produce of their land, thus rendering them largely independent of the condition of the ordinary wagon roads, which, by the way, have become very poor through neglect since the inauguration of the railroad system. Thus will the large markets of St. Louis and Chicago be practically at the door of every farmer throughout this district for the sale of his perishable produce. The moment the proposed road is completed and put in operation, all lands throughout the district traversed by the road will be increased in value from one to two hundred per cent., and ultimately, and that at a day not very far distant, the land immediately contiguous to the road will be selling by the front foot instead of, as at present, by the acre, with very little demand for even this. It will, of course, be to the highest interest of this company to build this road and get it in operation in time for the World's Fair, so as to secure the immense traffic incident thereto. It is entirely practicable, says the prospectus, to build such a road within the time allotted. Steam roads of a much more difficult character have been built much more rapidly: for instance, the Texas and Pacific Extension was built a distance of 615 miles in twenty-two months, four hundred miles of which was through a region entirely destitute of railroads and even of population, the cattle men at that time having failed even to penetrate the greater portion with their herds. The country was of a rough and hilly character, many summits being as high as three and four thousand feet, with such modifications of climate as to make a trip across the country a series of continual surprises. For a great portion of the road a rate of two miles for every working day was maintained for several months. Ties, fuel, and bridge timber had to be transported from East Texas, a distance of from four to six hundred miles; rails from Pennsylvania, seventeen hundred miles; and water from wherever it could be gotten along the line. The present proposed road will have none of these difficulties to contend with. It will have a practically level country over which to build its road, which will be crossed at intervals by steam roads which can be utilized for the transportation of its materials. An interesting fact may be stated in this connection, that contracts can be made for the delivery of rails for the entire road within six weeks from the day of giving the order. The electric carriage or car that will be run upon this proposed electric road is a long, low, compact, light but strong car, having two pairs of driving wheels, each of which is driven by a separate and distinc- electric motor. The whole weight of the car with its passengers, and of the two electric motors, comes upon these two pairs of driving wheels, and is, therefore, all available for traction or adhesion between the rails and the wheels, through the agency of which the car is propelled. The top of the car stands only nine feet from the rail, which is three feet lower than the ordinary street car. This brings the centre of gravity very low and near to the track, which decreases immensely the danger of jumping the track. It has a wedge-shaped nose or front for cutting the air, which has the effect of decreasing the air resistance and of helping to keep the car down upon the track. The motor man stands immediately back of this wedge-shaped front, and between his department and the rear wheels is the compartment for the accommodation of passengers. In the rear of this is a separate compartment for mail and high class express. The driving wheels are six feet in diameter, and are capable of making five hundred revolutions in one minute. The weight of the entire car with its motors is but ten tons. It may be interesting in this connetion to state that a steam locomotive to make the same speed, if it were practicable, would have to weigh in the neighborhood of one hundred tons, and the present locomotive weighs from sixty to ninety tons. These electric carriages or cars will be illuminated and heated by electricity, and will contain all the modern appointments for the comfort of passengers. There will be no conductors and no brakemen. It will be possible to stop the car within half a mile by means of the motors themselves and auxiliary electric brakes."

FLORIDA FRUITS.

SOME OF THE LITTLE-KNOWN PRODUCTS OF THAT SEMI-TROPICAL REGION.

A correspondent of the *Evening Post* writing from Fort Meyers, Florida, has this to say respecting the fruits of that region of sunshine, oranges and flowers "Florida is notably the land of flowers, but it is quite as truly a land of fruits, and Northern visitors are always agreeably surprised at the number and great variety of tropical products which can be grown upon the warm southern peninsula of this State. From its very nature the orange ranks first among the fruits of the south, but many other members of the citrus family are becoming as favorably known as the orange. The grape-fruit and shaddock sell rapidly in Northern markets, although five years ago they were allowed to rot upon the trees. Many people use the words shaddock and grape-fruit interchangeably, but the former is much larger, often weighing from three to four pounds. The shaddocks yield a course food, which is of very little use, but the trees make fine ornamental pieces for the lawn and garden. The tree originally came from China and Japan, and was brought to the West Indies by one Capt. Shaddock, from whom the name was taken. There are said to be upwards of forty distinct varieties of the fruit in Florida; some kinds are preserved the same as citrons. The shaddocks are sometimes called pompelmouse or pummellow, while the grape-fruit—a near relative—goes by the name of pomelo. This fruit is preferred by many to the orange, and the trees are larger and more prolific. The fruit is large and juicy, containing an agreeable and healthful acid. A twig no larger than the little finger will sometimes produce four or five large grape-fruits, and a comparatively small tree will produce as many as 2,000 in a season. They are picked, sized, and packed nearly the same as oranges, and in the cities they retail at from five to fifteen cents apiece. A fine grape-fruit tree will thus yield more profit than an orange tree, but nearly all of them were originally planted simply for ornamental purposes. Until very recently there has been no systematic attempt to cultivate and market the grape-fruit, but with the increased demand for it it is rapidly coming to the front. The citrons of Florida are as fine as any of those imported from China, Persia, or the warmer ports of Spain and

Italy. The citron shrubs have been growing luxuriantly in the gardens for many years for ornament, and a few of the best fruits have been preserved for home use. Beyond this, however, the citrons have not been properly appreciated in the south. The citron plant belongs, with the lime, orange, and lemon to the citrus family, and it is a shrub that attains a height of about six feet. The yellow fruits are almost as large as pumpkins, with a thick, deeply furrowed skin. In fact, the skin constitutes nearly two-thirds of the fruit, and when this is cut up it makes excellent preserves. The inside of the outer skin is preserved in sugar, while the rind itself yields perfumes—the oil of cedar and oil of citron. In the Oriental countries these perfumes are highly valued, and are extensively used. In Florida the citrons are used for perfumery sometimes in the raw state, and when kept in the house they are very fragrant and scent a whole room. The citron shrubs are very tender, and they can be grown only in the southern tier of counties. The lime (*Citrus limetta*) is a fruit that is destined to become an important article of commerce in Florida, and already it ranks high in a profitable way. Most of the citric acid of commerce is made from the lime, and the fruits are very valuable for pickling and preserving. The variety of lime known as the Tahiti is grown most extensively in Florida, and the fruits of this variety are nearly as large as lemons. Limes sell well in our Northern markets, and great quantities of imported lime juice are used. As anti-bilious tonics and appetizers the pickled limes are unsurpassed. In Florida the home method of preparing them for market is to put the fruits into water-tight barrels and to pour sea-water over them. Every twenty-four hours the water is changed, and at the expiration of three days the limes have absorbed enough brine to keep them. They are then shipped in casks or barrels, and a few in bottles, the same as the imported limes. The mangoes of Florida are likewise grown in considerable numbers, and wild varieties may be met with in different countries, which range in size all the way from a plum up to an apple. The wild varieties are sour and stringy, and are unfit to eat, having a flavor of turpentine and gallic acid. The cultivated varieties are about the size of an egg, with a more or less fibrous and stringy pulp, but when properly ripened they have a very agreeable flavor. Mangoes are prized as preventives of malaria, and in cases of fever several of them are eaten daily. In Persia and India, whence our mangoes originally came, the fruits, and even the seeds are greedily devoured by the natives. The wood of the mango tree is considered sacred, and it is often used with the sandalwood for cremation. Great quantities of mangoes have been imported from Europe and Asia, but the cultivation in Florida has largely interfered with this trade. The date-palms have been grown in most countries, both for their stately, ornamental value, and for the long oblong drupes which hang in pendants from the trees. Even in North Florida the date-palms are often seen, but it is rarely that they mature their fruits in that section. They are very tender, and can only be made to succeed well along the Gulf Coast and in the extreme southern part of the peninsula. The palms reach a height of sixty or seventy feet, and their tall graceful crowns, with bright flowers, are sights to ornament any landscape. The fruits are shipped north only in the dried and pressed form. The drying process changes their shape and flavor, and robs them of the delicious aroma that is so agreeable when first plucked. The trunks and leaves of the trees are used for various purposes. A palatable wine is made from fermented date fruit, and the trees are sometimes tapped for their sap, which can be converted into good wine or evaporated into sugar. One tree will yield two gallons of sap a day for several months. The tamarind trees are natives of the tropics, but Florida and California produce magnificent specimens. From Tampa southward they are grown in considerable numbers, and their fruits are sent north, east, and west for sale. The trees are tall, with wide-spreading branches, and the fruits are enclosed in a hard, shelly bark, which keeps the acid from escaping. The pulp of the fruit contains citric and tartaric acid, which makes them highly esteemed as a laxative and refrigerant. In the cities of Florida the fruits are displayed for sale just as they come from the trees, but they are usually shipped north in the preserved state. This process is simple. The outside pods are taken off, and the pulpy insides are placed in fruit or stone jars, or in casks in layers. Powdered sugar is spread between each layer. Some pour boiling water over the layers, and when the syrup has cooled and hardened the cask is headed up. In the East Indies the fruits are often put up by kneading them into a pulpy mass and then packing the material tightly into jars. This fruit is also raised in considerable quantities in Mexico, Jamaica and Brazil. Guavas are Florida's peaches, and many persons eat them out of hand as Northerners eat their Delaware peaches. They are among the most perishable fruits of the south, and can scarcely be shipped as far as Jacksonville and St. Augustine for display. The shrubs are very tender and can only be grown in the southern part of the State. Guavas are made up into jellies, jams, and pies, but when served raw with cream and sugar they have a delicious flavor peculiar to themselves. The name of guava comes from the Mexican *Goayaba*, and the fruits were origianally brought from Mexico or the West Indies. The fruits are about the size of a hen's egg and pear-shaped, with a bright yellowish-green skin. The trees average fifteen to twenty feet in height, and they are very beautiful for ornamental purposes. The fruits are ripe in June or July, and the trees continue to produce for months unless injured by cold weather. Tropical America produces enormous quantities of the fruits, and the natives eat them in various forms. In Florida they have been used very little for commercial purposes, although more attention is now being paid to their cultivation. Cattley's guava is the finest grown in the South, and it generally commands good prices at the hotels where Northerners stay. The kumquat is a peculiar fruit of Florida production that has the advantage of being delicious to the taste, attractive to the eye, and comparatively hardy. The fruit is about an inch in diameter, and of a deep orange color. The rind is sweet and the juice acid and refreshing. In Florida the fruit is worked on ordinary orange stock, and it may be grafted on any of the trees of the citrus family. The shrub in cultivation is seldom allowed to exceed the height of a gooseberry bush, although if allowed to grow wild, it would attain a much higher growth. It is a native of Japan, and is cultivated extensively in China as well. When the fruits are picked and placed on sale in strawberry baskets they make a pretty sight, and as the shrubs are prolific, the profits in growing them are not small. A great many small fruits of Florida have been brought from the tropical regions south, and along the Gulf Coast nearly all of the fruits of the tropics can be grown successfully. Many of these are now to be found in private gardens and orchards, where they are grown for experiment or for ornamentation. They are never placed on sale, and visitors have to see them on the trees if they obtain any idea of their existence. Not a few of them have names that are foreign to our tongue, but to natives of the tropical countries they are as familiar as our apples and pears. The sapodillas and sour-sops are two fruits frequently met with in Florida, but never seen further north. The sapodillas come from the West Indies, and were first cultivated at Point Pinellas, near Tampa, and it is at that place one must go to see them in their greatest perfection. They make very excellent desserts, but they are not very pleasant eating out of the hand. The sour-sops come from South America, and the trees on which the fruits are grown are very ornamental. The fruits are large and graceful, and frequently one sour-sop will weigh two or three pounds. They have a sour, but extremely pleasant taste, and the natives of the Southern countries eat them with relish. They are also worked up into preserves and desserts. The sugar-apple is a tender native of the West Indies, and the fruits taste something like the date, and they are relished by nearly all visitors to Florida. The fruit is a rich, yellowish-green, with a rough outside skin, but sweet within. The avocade, or alligator pear, is much esteemed in the south, and around Key West great quantities are grown in private gardens. When placed on the market they sell from sixty cents to one dollar per dozen. The fruit is so soft and delicate inside that it dissolves in the mouth, and is often called 'vegetable butter.' As it is rather oily and pasty, its flavor is much improved when pepper and vinegar are eaten with it. For salads the fruits make a fine novelty, which would be greatly appreciated at the Northern hotels.

PICKLES.

HOW THEY SOMETIMES ARE MADE HARMFUL.

Pickles are bad enough in themselves. They are difficult of digestion, irritating, and utterly unwholesome as articles of food. Dr. Jackson, of Pittsburg, has recently been investigating pickles, and he finds they are very generally adulterated with poisonous substances which render their use not only unwholesome, but absolutely dangerous. We quote as follows from Dr. Jackson's report of his investigations: "Salicylic acid is almost universally used by tomato catsup manufacturers for the purpose of cheaply preserving the catsup from fermentation. The manufacturer also uses it to preserve the large quantities of tomatoes which he buys when cheapest, in a sort of mash or pulp. Salicylic acid is injurious when taken in more than very small doses, not frequently repeated, as it causes emaciation or wasting of the tissues. The coloring matter—aniline red—as a matter of fact often contains arsenic. How any one can imagine that tomatoes could give such a color to catsup as is possessed by this article, it is difficult to conceive. It must be remembered that arsenic is not to be trifled with, and that, like all metals, it accumulates in the system. Ten samples of domestic and foreign pickles were examined, with the result of finding impurities and adulteration in 32 per cent. Copper was present in two samples, sulphuric acid (oil of vitriol) in seven, lead in one, iron in two, zinc in one. The copper found was present in considerable amount, and had been added for the sole purpose of dyeing the pickles a bluish green color. Pickles of a vivid green color invariably contain copper. It is still a common practice with many housewives to 'green' their pickles by allowing them, with their vinegar, to stand in brass or copper kettles for twenty-four hours or more; and it is also advised in some cook books to place a few pennies in the pot while cooking the pickles. How is it that any one should be so ignorant as to do these things it is difficult to conceive, yet it is done. Many cases, some fatal, of poisoning from eating pickles colored with copper have been reported. The oil of vitriol found in seven samples is evidently a very common sophistication. Its cost is so little and its strength is so great that the temptation to use it as an adulterant of vinegar is powerful. The sulphuric acid found was probably added to give an extra tartness to the pickles. Sulphuric acid too often contains arsenic. You may detect sulphuric acid in vinegar and pickles in this way: Place a few drops of the vinegar on a small piece of granulated white cane sugar in a saucer, then set the saucer over the top of a tea-kettle or other vessel in which water is kept boiling for some time. This will evaporate the water and the acetic acid of the vinegar, and then, if sulphuric acid is present, it will be concentrated and char the sugar. This charring of the sugar is a certain and simple test for the presence of any important quantities of sulphuric acid."—*Selected.*

BRIGHT STORIES.

A STRANGE WOOING.

HOW THE REV. SAMUEL BAX TOOK A WIFE.

BY "Q."

Early last fall there died in Troy an old man and his wife. The woman went first, and the husband took a chill at her grave's edge, when he stood bareheaded in a lashing shower. The loose earth crumbled under his feet, truckling over, and dropped on her coffin-lid. Through two long nights he lay on his bed without sleeping and listened to this sound. At first it ran in his ears perpetually, but afterwards he heard it at intervals only in the pauses of acute suffering. On the seventh day he died of pleuro-pneumonia, and on the tenth (a Sunday) they buried him. For just fifty years the dead man had been minister of the Independent chapel on the hill, and had laid down his pastorate two years before, on his golden wedding day.

When, at the close of the year 1869, the Rev. Samuel Bax visited Troy for the first time, to preach his trial sermon at Salem chapel, he arrived by Bontigo's van, late on a Saturday night, and departed again for Plymouth at 7 o'clock on Monday morning. He had just turned twenty-one, and looked younger, and the zeal of his calling was strong upon him. Moreover, he was shaken with nervous anxiety for the success of his sermon; so that it is no marvel that he carried away but blurred and misty impressions of the little port and the congregation that sat beneath him that morning, ostensibly reverent, but actually on the watch for heresy or any sign of weakness.

The maids in the congregation knew beforehand that he was unmarried, and came out of the chapel knowing also that his eyes were brown, that his hair had a reddish tinge in certain lights, that one of his cuffs was frayed slightly; that his black coat had scarcely been worn a dozen times, with other trifles. They loitered by the chapel door until he came out, in company with Deacon Snowden, who was conveying him off to dinner. The deacon on week days was harbor master of the port, and on Sundays afforded himself roasted duck for dinner. Lizzie Snowden walked at her father's right hand. She was a slightly bloodless blonde, tall, with a pretty complexion, and hair upon which it was rumored she could sit if she were so minded. The girls watched the young preacher and his entertainers as they moved down the hill, the deacon talking, and his daughter turning her head aside as if it were merely in the section of the world situated on her right hand that she took the least interest.

"That's to show 'em the big plait," commented one of the group behind. "He can't turn his head her way but it stares 'em in the face."

"An' her features look best from the left side, as everybody knows."

"I reckon, if he's chosen minister," that Lizzie 'll have 'em," said a tall, lanky girl. She was apprenticed to a dressmaker and engaged to a young tinsmith. Having laid aside ambition on her own account she flung in this remark as an apple of discord.

"Tenifer Hosken has a chance. He's fair-skinned hissel', and Lizzie's too near his own color. Black's mate is white, as they say."

"There's Sue Tregraine. She'll have more money than either when her father dies."

"What, marry one o' Ruan!" the speaker tittered despitefully."

"Why not?"

The only answer was a shrug. Ruan is a small town that faces Troy across the diminutive harbor, or, perhaps, I should say that Troy looks down upon it at this slight distance. "When a Trojan speaks of it he says, "Across the water," with as much implied contempt as though he meant Botany Bay.

"Her father's a ship-builder," urged Sue Tregaine's supporter."

"He might so well keep crab pots, for all the chance she'll have."

Now there was a Ruan girl standing just outside this group, and she heard what was said. Her name was Nance Trewartha and her father was a fisherman, who did in fact keep crab pots. Moreover, she was his only child, and helped him at his trade. She could handle a boat as well as a man, she knew every sea mark up and down the coast for forty miles, she could cut up bait, and her hands were horny with handling ropes from her childhood. But on Sunday she wore gloves, and came across the ferry to chapel, and was as wise as any of her sex. She had known before coming out of her pew that the young minister had a well-shaped back to his head and a gold ring on his little finger, with somebody's hair in the collet, under a crystal. She was dark, straight and lithsome of figure, with ripe lips and eyes as black as sloes, and she hoped that the hair in the minister's ring was his mother's. She was well aware of her social inferiority; but—the truth may be told—she chose to forget it that morning, and to wonder what this young man would be like as a husband.

Then came that unhappy remark about the crab pots. She bit her lip for a moment, turned and walked slowly off toward the ferry, full of thought.

Three weeks later the Rev. Samuel Bax received his call.

He arrived, to assume his duties, in the waning light of a soft January day. Bontigo's van set him down, with a carpet-bag, band-box and chest of books, at the door of the lodgings which Deacon Snowden had taken for him. The house stood in the North Street, as it is called. It was a small, yellow-washed building, containing just half a dozen rooms, and of these the two set apart for the minister looked straight upon the harbor. Under his sitting-room window was a little garden, and at the end of the garden a low wall with a stretch of water beyond it and a bark that lay at anchor but a stone's throw away, as it seemed, its masts overtopping the misty hillside that closed the view. A green painted door was let into the garden wall—a door with two flaps, the upper of which stood open; and through this opening he caught another glimpse of grey water.

The landlady who showed him into this room, and at once began to explain that the furniture was better than it looked, was hardly prepared for the rapture with with which he stared out of the window. His boyhood had been spent in a sooty Lancashire town, and to him the green garden, the quay door, the bark and the stilly water seemed to fall little short of Paradise.

"I reckoned you'd like it," she said. "An' to be sure, 'tis a blessing you do."

He turned his stare upon her for a moment. She was a benign-looking woman of about fifty, in a short-skirted grey gown and widow's cap.

"Why do you say that?"

"Because, leavin' out the kitchen, there's but four rooms, two for you an' two for me; two facin' the harbor an' two facin' the street. Now, if you took a dislike to this look-out I must ha' put you over the street an' moved in here mysel'. I do like the street, too. There's so much more doin'."

"I think this arrangement will be better in every way," said the young minister.

"I'm main glad. Iss, there's no denyin' that I'm main glad. From upstairs you can see right down the harbor, which is prettier again. Would'ee like to see it now? O' course you would—an' it'll be so much handier for answerin' the door, too. There's a back door at the end o' the passage. You've only to slip a bolt and you'm out on the garden—or out to your boat, if you choose to keep one. But the garden's a tidy little spot to walk up an' down in' and make up your sermons, wi' nobody to overlook you but the folk next door, an' they'm church-goers."

After supper that evening the young minister unpacked his books and was about to arrange them, but drifted to the window instead.

A slight sound drew the minister's gaze to the quay door. Its upper flap still stood open, allowing a square of moonlight to pierce the straight, black shadow of the garden wall.

In this square of moonlight there now framed the head and shoulders of a human being.

The young man felt a slight chill run down his spine. He leaned forward out of the window and challenged the apparition, bating his tone as all people bate it at that hour.

"Who are you?" he demanded, "and what is your business here?"

There was no reply for a moment, though he felt sure his voice must have carried to the quay door. The figure paused for a second or two, then unbarred the lower flap of the door and advanced across the wall's shadow to the center of the bright grass plot under the window. It was the figure of a young woman. Her head was bare and her sleeves turned up to the elbows. She wore no cloak or wrap to cover her from the night air, and her short-skirted, coarse frock was open at the neck. As she turned up her face to the window, the minister could see by the moon's rays that it was well favored.

"Be you the new preacher?" she asked, resting a hand on her hip and speaking softly up to him.

"I am the new Independent minister."

"Then I've come for you."

"Come for me?"

"Iss; my name's Nance Trewartha, an' you 'en wanted across the water, quick as possible. Old Mrs. Slade's a-dyin' to-night, over yonder."

"She wants me?"

"She's one o' your congregation an' can't die easy till you've seen her. I reckon she's got something 'pon her mind; an' I was to fetch you over, quick as I could."

As she spoke the church clock down in the town chimed out the hour, and immediately after, ten strokes sounded on the clear air.

The minister consulted his own watch and seemed to be considering.

"Very well," said he after a pause. "I'll come. I suppose I must cross by the ferry."

"Ferry's closed this two hours, an' you needn't wake up any in the house, I've brought father's boat to the ladder below, an' I'll bring you back again. You've only to step out here by the back door. An' wrap yourself up, for 'tis a brave distance."

"Very well. I suppose it's really serious."

"Mortal. I'm glad you'll come," she added simply.

The young man nodded down in a friendly manner, and going back into the room, slipped on his overcoat, picked up his hat, and turned the lamp down carefully. Then he struck a match, found his way to the back door, and unbarred it. The girl was waiting for him, still in the centre of the grass-plot.

"I'm glad you've come," she repeated, but this time there was something like constraint in her voice. As she pulled to the door softly she moved, and led the way down to the water side.

From the quay-door a long ladder ran down to the water. At low water one had to descend twenty feet or more; but now the high tide left but three of its rungs uncovered. At the young minister's feet a small fishing boat lay ready, moored by a short painter to the ladder. The girl stepped lightly down and held up her hand.

"Thank you," said the young man with dignity, "but I do not want help."

She made no answer to this; but as he stepped down, went forward and unmoored the painter. Then she pushed gently away from the ladder, hoisted the small foresail, and, returning to her companion, stood beside him for a moment with her hand on the tiller.

She made the fore sheet fast and took hold of the tiller again. The sails shook and filled softly as they glided out from under the wall. The soft breeze blew straight behind them, and the tide was just beginning to ebb. She slackened the main sheet a little and the water hissed as they spun down under the gray town towards the harbor's mouth.

It seemed to him that they were not shaping their course for the little town.

"I thought you told me," he said at length, "that Mrs. ———, the dying woman, lived across there."

The girl shook her head. "Not in Ruan itself—Ruan parish. We'll have to go round the point."

In a minute or two they were sweeping between the tall cliff and the reef of rocks that guard this entrance on either side. On the reef stood a wooden cross, painted white, warning vessels to give a wide berth; on the cliff a gray castle, with a battery before it, under the guns of which they spun seaward, still with the wind astern.

Outside the sea lay as smooth as within the harbor. The wind blew steadily off the shore, so that, close-hauled, one might fetch up or down channel with equal ease. The girl began to flatten the sails, and asked her companion to bear a hand. Their hands met over a rope, and the man noted with surprise that the girl's was feverishly hot. Then she brought the boat's nose round to the eastward, and, heeling gently over the dark water, they began to skirt the misty coast with the breeze on their left cheeks.

"How much farther?" asked the minister.

She nodded towards the first point in the direction of Plymouth. He turned his coat-collar up about his ears, and wondered if his duty would often take him on such journeys as this; also, he felt thankful that the sea was smooth. He might or he might not be given to sea-sickness; but somehow he was sincerely glad that he had not to be put to test, for the first time, in this girl's presence.

They passed the small headland, and still the boat held on its way.

"I had no idea you were going to take me this distance. Didn't you promise me the house lay just beyond the point we've just passed?"

To his amazement the girl drew herself up, looked him straight in the face, and said:

"There's no such place!"

"What?"

"There's no such place. There's nobody ill at all! I told you a lie!"

"You told me a lie—then why in the name of common sense am I here?"

"Because, young minister—because, sir, I'm sick o' love for you, an' I want 'ee to marry me."

"Great Heaven!" the young minister muttered, recoiling. "Is the girl mad?"

"Ah, but look at me, sir." She seemed to grow still taller as she stood there, resting one hand on the tiller and looking at him with perfectly serious eyes. "Look at me well before your fancy lights 'pon some other o' the girls. To-morrow they'll be all after 'ee, and this 'll be my only chance, for my father's no better than a plain fisherman, an' they're all above me in money and rank. I be but a common Ruan girl, an' my family is counted for naught. But look at me well; there's none stronger or comelier, nor that'll love 'ee so dear."

The young man positively gasped. "Set me ashore at once!" he commanded, stamping his foot.

"Nay, that I will not till thou promise, and that's flat. Dear lad, listen—an' consent—consent—an' I swer to 'ee thou'll never be sorry for 't."

"I never heard such awful impropriety in my life. Turn back; I order you to steer back to the harbor at once!"

She shook her head. "No, lad, I won't; an' what's more, you don't know how to handle a boat, an' couldn't got back by yoursel', not in a month."

"This is stark madness! You—you—abandoned woman, how long do you mean to keep me here?"

"Till thou give into me. We'm goin' straight t'wards Plymouth now, an' if th' wind holds—as 'twill—we'll be off the Rame in two hours. If you haven't said me yes by that, maybe we'll go on; or perhaps we'll run across the coast o' France—"

"Girl, do you know that if I'm not back by daybreak I'm ruined?"

"And oh, man! can't 'ee see that I'm ruined, too, if I turn back without your word? How shall I show my face in Troy streets again, tell me?"

At this sudden transference of responsibility the minister staggered.

"You should have thought of that before, he said, employing the one obvious answer.

"O' course I thought of it. But for love o' you I made up my mind to risk it. An' now there's no goin' back." She paused a moment and then added, as though a thought struck her, "Why, lad, doesn't that prove I love 'ee uncommon?"

"I prefer not to consider the question. Once more—will you go back?"

"I can't."

He bit his lips and moved forward to the cuddy, on the roof of which he seated himself sulkily. The girl tossed him an end of rope.

"Dear, better coil that up an' sit upon it. The frost 'll strike a chill into 'ee."

With this she resumed her old attitude by the tiller. Neither spoke. For the most part the minister avoided the girl's eyes, and sat nursing his wrath. The whole affair was ludicrous; but it meant the sudden ruin of his good name at the very start of his career. This was the word he kept grinding between his teeth: "Ruin—ruin!" Whenever it pleased this mad woman to set him ashore he must write to Deacon Snowdon for his boxes, and resign all connection with Troy. But would he ever get rid of the scandal? Could he ever be sure of that? to whatever distance he might flee would it not follow him? Had he not better abandon his calling once and for all? It was hard.

A star shot down from the Milky Way and disappeared in darkness behind the girl's shoulder. His eyes following it, encountered hers. She left the tiller and came slowly forward.

"In three minutes we'll open Plymouth Sound," she said, quietly, and then with a sharp gesture flung both arms out towards him. "Oh, lad, think better o't an' turn back wi' me. Say you'll marry me, for I'm perishin' o' love."

The moonshine fell on her throat and extended arms. Her lips were parted, her head was thrown back a little, and for the first time the young minister saw that she was a beautiful woman.

"Ay, look, look at me," she pleaded. "That's what I've wanted 'ee to do all along. Take my hands; they'm shapely to look at and strong to work for 'ee."

Hardly knowing what he did the young man took them; then in a moment he let them go—but too late; they were about his neck.

With that he sealed his fate for good or ill. He bent forward a little and their lips met.

So steady was the wind that the boat still held on her course; but no sooner had the girl received the kiss that she knew to be a binding promise than she dropped her arms, walked off, and shifted the helm.

"Unfasten the sheet here," she commanded, "and duck your head clear o' the boom."

As soon as their faces were set for home, the minister walked back to the cuddy roof and sat down to reflect. Not a word was spoken till they reached the harbor's mouth again, and then he pulled out his watch. It was half-past four in the morning.

Outside the Battery point the girl hauled down the sails and got out the sweeps, and together they pulled up under the still sleeping town to the minister's quay door. He was clumsy at this work, but she instructed him in whispers, and they managed to reach the ladder as the clocks were striking five. The tide was far down by this time, and she held the boat close to the ladder while he prepared to climb. With his foot on the first round he turned. She was white as a ghost, and trembled from top to toe."

"Nance—did you say your name was Nance?"

She nodded.

"What's the matter?"

"I'll—I'll let you off if you want to be let off."

"I'm not sure that I do," he said, and stealing softly up the ladder stood at the top and watched her boat as she steered it back to Ruan.

They were married in three months, to the indignant amazement of the minister's congregation. It almost cost him his pulpit, but he held on and triumphed.—*Philadelphia Inquirer.*

NEW COINS.

HOW SILVER CURRENCY IS COINED.

Recently the mints of the United States commenced the re-coinage of the subsidiary silver—the half dollar, the quarter, and the dime. Artistically, says *Electrical Progress*, they are very much superior to all former issues, and will compare favorably with any coins of the world. As new dies had to be made for this coinage, it may be interesting to refer to them. When the die for a new coin is engraved, it is done with great care and expense. It is used only to make an impression on what is called a hub, which of course is the reverse of the die, when the hub is used only to stamp the working dies, which become a fac-simile of the master die. In coinage these working dies alone are used, and as a matter of course soon become deteriorated. Thus the master die can remain doing very little hard service. As an example, the coinage of the more than 400,000,000 silver dollars which have been made since 1878 are exact duplicates from one master die. On the commencement of this coinage there was some experimenting and some variation in about $1,000,000. Since then all have been alike except in date. These dies and hubs are all made of choice steel. In regard to the weight of the new coins, it may be interesting to recall the fact that we reduced the amount of pure silver in these coins in 1853. This was done in order to save them from the melting-pot and exportation as they were more valuable than gold and met this fate to the great inconvenience of our people. The half dollar was reduced in weight fourteen and a quarter grains, the quarter and the dime in a corresponding ratio. In 1873, in order to assimilate these coins to the full legal tender silver used in France and to popularize the French metric system, the weight of the half dollar was increased nine-tenths of a grain, or, as expressed in our laws to twelve and a half grammes, and the quarter and dime were increased in the same proportion. Thus these coins are at present legal French weights. The half dollar, 12½ grammes; the quarter dollar, 6¼ grammes; the dime, 2½ grammes. Thus a French kilogramme equals eighty-four half dollars. In 1874 the French metric system was legalized by Congress, the sole authority intrusted with this power.

DOMESTIC ELECTRICITY.—Electricity in the residence is one of the most useful of commodities. It furnishes electric lighting, electric heating, electric power, bells, annunciators; it can be further utilized to rock the baby and sing lullaby tunes; it will play your piano or organ and iron your linen—in fact the duties of a housekeeper could be reduced to the most minute minimum if you will only employ the electric servant; it calls you in the morning and will even furnish you with shaving water, and when your cravat is nicely adjusted you have only to place your foot on the blacking-box and the action "presses a button" and the ingenious electric boot-black "does the rest;" you descend to the dining-room, and the electric dumb-waiter brings in your morning meal, and returns the dishes to the kitchen, where the same agency takes care of them. What a world of progress we are living in, and how fast we are grasping the new and useful conveniences of modern invention, only those who have long since passed the pearly gates to the great beyond, and could return, would be able to tell us.

ERRATIC GENIUS.

THE PECULIARITIES OF SOME FAMOUS WOMEN.

If further proof were wanting of my theory as to the frequency of neurosis as an accompaniment of genius, I think that the diaries and letters of Marie Bashkirtseff would amply supply what may be lacking. That she was a true genius her pictures attest. They also prove the ardor and vehemence with which she gave herself up to art. When she was fifteen she wrote: "I have no inclination for anything but painting. One cannot become a great painter without great mechanical toil. At twenty-two I shall be either famous or dead." She worked nine or ten hours a day, took no care of her health, gave up all pleasure. One of the foundations of her moral craziness was an immense vanity and megalomania. These showed themselves at an early age. When she was but three years old she had aspirations for imaginary grandeur; her dolls were always queens. At the age of five she dressed herself in her mother's laces and went into the drawing-room with the hope of attracting admiration. She said: "I am a woman on the outside only, and this outside is devilishly feminine; the rest of me is devilishly something else." Later she wrote: "I swear on the Gospel that I will be famous." "I will present society with a woman who will be something, in spite of all the obstacles which society will put in my way." When she was twenty she wrote: "I am reading Balzac to my own injury, for the time given to reading him would aid me to become another Balzac in painting." In her book she declares that she had never really loved anyone. She had so little affection for her family that, when there was no stranger at table, she preferred to dine alone with a book, so that no one might disturb her. Yet she was adored by her family. Moreover, this young girl who loved neither her mother nor any of her relatives, had, like many another morally crazy person, an extraordinary affection for beasts. "I would prefer," she wrote, "to see C." (who was in love with her) "sick, or even dead, rather than lose my dog." She did not understand that shrinking modesty which is one of the most beautiful and feminine qualities of a woman. She defined it to be the fear of showing lines which will not be perfect. She had an impulsiveness like that of epileptics. Thus she would do acts, the cause of which she could not account for. "Last evening I had a fit of despair in which I threw into the sea my clock. It was of bronze, with a Paul, without a Virginia, who was fishing. Poor clock!" She had attempted, or, at least, had an idea of suicide. "If painting does not bring me fame soon, I will kill myself." "I want to kill myself and must do it, although the idea seems stupid and grandiose." "In Russia I tried to commit suicide, but I was afraid. I will kill myself when I am thirty; up to that age one is still young and can hope." Her father, blond, pale and wicked, was the son of a vigorous man and a sickly woman who died young. Her father's sisters were hunchbacks. Two of her great-grandmothers and two of her aunts died of consumption. Another woman who was an artist and neurotic, but of a character essentially different from Marie Bashkirtseff, was Julie Hasdeù. She was born at Bucharest in 1869, and died at the age of nineteen, leaving two volumes of prose and poetry. She was extremely precocious. When she was nine years old she was acquainted with five languages and wrote satires on her professors. At thirteen she was entered at the Sorbonne. While still quite young she had fits of hypochondria. Like Marie Bashkirtseff, she showed a feverish activity, rising at four o'clock in the morning and working by lamplight. Unlike Marie, however, who had parted with all her femininity, Julie Hasdeù preserved all a woman's sweetness. She foresaw she would die young; but she was a believer, very religious and looked forward to death with pleasure. She was seized with a galloping consumption in the midst of youth, wealth and happiness. Among her grandparents, one died very young; another was melancholy and misanthropical; her grandfather died a prey to religious exaltation. Women of genius, as has been judiciously remarked, manifest a masculine tendency in their works and sometimes in their persons. Madame de Staël had the face of a man. George Sand wore a man's dress. Sappho fell in love with women, and her famous poem appears to have been addressed to one of her own sex. Mary Wollstonecraft, the first to advocate the emancipation of woman, was the daughter of a man morally crazy and of a woman who was a maniac and a sister of lunatics. Mary kept herself so dirty and unkempt when at school that she was given the name of "philosophical sloven." She was full of neurotic contradictions. Though religious, she called the priests "lazy lice." After having preached free marital union, she was indignant beyond all bounds at Imlay, who deserted her, and, nevertheless, afterwards married Godwin. George Eliot had a man's countenance, with an enormous head, hair always in disorder, a big nose thick lips, a heavy jaw, altogether bearing some resemblance to a horse's head. She also was a neurotic—so timid that she was frightened at night without any cause. Although she declared herself overwhelmed with grief by the death of Lewes, she married again a few months after, when she was sixty, and her new husband a young man. As a final instance of neurosis in women of superior intellect, I note the case of Minna Mayländer, who died quite recently in Germany, where she had a high reputation as an author. Her conduct was erratic. She had all the whims and instability of a neurotic person. Always embarrassed pecuniarily, it was no use to help her, for she threw away her money like a millionaire. After being obliged to quit several lodgings in succession, because she could not pay her rent, the people of the house in which she died, unable to keep her for nothing, leased her room over her head. Then she begged to stay in the house until she could find another roof to cover her. The man and wife, who were her landlords, good-naturedly, though much to their inconvenience, gave her their own room. Once in possession of this Minna refused to move. A resort to the law was necessary to oust her. When the officers of the law came to put her out, it was found she had committed suicide, and that after a man's fashion—for she cut her throat.—*La Nouvelle Revue.*

DOMESTIC DIETETICS.

SPECIALLY PREPARED, FROM PRACTICAL TESTS, FOR THE LADY READERS OF THE "AMERICAN ANALYST."

SEASONABLE FOOD.

March.

MEATS.—Beef, mutton, ham, kidneys, liver, venison, sausage, pork.

GAME AND POULTRY.—Grouse, hare, pigeon, chicken, duck, turkey, geese.

FISH.—Bass, cod, crabs, eels, carp, catfish, flounder, halibut, herring, lobster, mackerel, mussels, oysters, perch, pike, rock-fish, salmon, smelt, whitefish.

VEGETABLES.—Artichokes, beets, beans, cabbage, carrots, celery, garlic, lettuce, onions, parsley, parsnips, potatoes, shallots, spinach, squash, tomatoes, turnips.

FRUIT.—Apples, bananas, grapes, oranges.

PRACTICAL RECIPES.

CAULIFLOWER SOUP.—Heat a quart of clear soup and add to it a cupful of finely chopped cold chicken and half a cupful of chopped cauliflower. Boil up for about ten minutes and serve.

BREADED MUTTON CUTLETS.—Trim your cutlets nicely and season them with salt and pepper. Beat up an egg and dip the cutlets in it and then in breadcrumbs. Fry in boiling fat for ten minutes; arrange in a hot platter; pour tomato sauce around them and serve.

RAISED CORNMEAL BREAD.—Rub a lump of butter the size of an egg into two cupfuls of cornmeal, add to this two well beaten eggs, enough sweet milk to make a rather thin batter, a little salt and sugar, and a large spoonful of yeast; set by the fire to rise for one hour, then bake in small pans.

SWEET FLANNEL CAKES.—Cook until very soft enough rice to make half a pint; let it cool, then add to it a cupful of cream, three tablespoonfuls of sugar, three eggs, a teaspoonful of baking powder, a little flour, and a pinch of salt. Beat well and bake on a griddle.

SPICED GINGER CAKE.—Half a pound of sugar, three-quarters of a pound of butter, ten eggs, one pint of molasses, one pound of flour, one tablespoonful of ginger, one tablespoonful of allspice, one tablespoonful of cinnamon, two teaspoonfuls of baking powder.

STEAK AND OYSTERS.—Put three tablespoonfuls of butter in a frying-pan, and when very hot put in a steak off the round weighing about two pounds, and cook for ten minutes. Pour a cupful of cold water on a pint of oysters and then drain them; put the water into a stewpan; as soon as it boils up skim it carefully and set it back. When the steak has cooked for ten minutes take it up, and stir a tablespoonful of flour in the pan with the butter remaining; stir for a few minutes, then add the oyster juice and let it boil up; season well with pepper and salt and add the steak to the gravy; cook for a moment, then put in the oysters and two spoonfuls of lemon juice. Let the oysters plum up, then serve at once.

WAFFLES.—Mix slowly into a scant pint of milk two cupfuls of flour, then add two eggs, the yolks and whites beaten separately, a teaspoonful of melted butter and a little salt. Heat your waffle-irons and grease them; fill up one iron with the mixture, put the other side down carefully, and let the iron stay on the fire for about half a minute, then turn over and brown on the other side, then serve.

LA GRIPPE.

SPECULATIONS ON THE EPIDEMIC IN FRANCE.

The epidemic of La Grippe of 1892, which has been severe in certain countries of Europe, notably in England, appears to have reached its height. It is probable that now it is going to decrease, as in February, 1890. The malady, although it has had numerous victims, has been, however, for Paris and France, much less malignant in 1892 than in 1890. If the statistics are not at fault, La Grippe must have killed in France at least 40 000 persons. The grippe is not very dangerous in itself; but it puts the organism in truly bad conditions of receptivity. It is especially dangerous for persons who have passed their fiftieth year, for the feeble and those who have chronic affections. The influenza, in a word, aggravates all maladies, and particularly maladies of the respiratory organs. It has not been doubtful, since 1890, that the grippe is infectious and contagious. In November, 1889, we were almost alone in holding that opinion, which is generally admitted now. It has become clear as the day. Yet we know absolutely knothing about the prophylaxis of the grippe. Do climatic conditions, fogs, cold, humidity, play any part in producing it? That seems evident at first thought. It seems reasonable to recommend precautions against the cold, to keep the circulation and secretions active by warm drinks and tonics, to avoid the night air, and such things. At Berlin, Mr. Pfeiffer, the son-in-law of Dr. Koch, has discovered in the tissues of persons who have died of influenza an extremely small bacillus, linked together in a little chain, and heretofore unknown. This bacillus has been seen also in the blood by Mr. Canon, and observed in all persons who have died of influenza by Mr. Kitasato, a young Japanese bacteriologist, who has experimented largely in the laboratory of Koch. The experiments on animals with this microbe lacks exactness, so that we cannot affirm that the microbe of influenza has really been discovered. At all events, we do not possess any specific for this disease. The newspapers have had a great deal to say about bicarbonate of potash in doses of thirty grains. Who would dare to insist that this substance has really any beneficial action? In the session of the Academy of Medicine on February 4th, Mr. A. Ollivier made a brief communication about the precautions to be taken against grippe. These are always the same. "Guard yourself against damp cold, especially if you are consumptive, if you have a malady of the heart, diabetes, and so on." He added, however, that from a preventive point of view he found an efficacious agent in cod-liver oil. This he administered in 1890 to thirty children; among these there has not been a single case of grippe, while several of their brothers and sisters who had not taken the oil were attacked. In 1892, Mr. Ollivier had but a single case of grippe among sick persons systematically treated with cod-liver oil. In that case the patient was consumptive, and his grippe was a slight attack only. Mr. Ollivier prescribes the oil to be taken during an early breakfast in a dose of one or two spoonfuls in some soup or porridge. Evidently, if the cod-liver oil is of use, it is only by its powerful tonic action on the organism, for the oil is not a specific for the malady. Is its use an illusion? Anyway it is not difficult to try Mr. Ollivier's remedy. From a prophylactic point of view, I take leave to recommend in 1892, as in 1890, certain simple practices. The microbe, whatever it may be, enters the system through the mouth or nose. It is useful therefore to carefully wash the mouth and nose with antiseptic liquids. I have also recommended the use of perfumes. Mr. Vallin, the eminent hygienist, advises this, in a brief communication to the Academy of Medicine: the mouth, he says, is the door of entrance and the place for cultivation of most of the germs of disease contained in the air. If these germs are rarely found in the respiratory passages, they are none the less swallowed with the saliva and can contaminate the organism through the intestines. Messrs. Roux and Yersin have examined the mouths of children, placed beside diphtheritic patients, in the Hospital for Sick Children, and have found in these mouths the pseudo-diphtheritic bacillus, which, though it be but an attenuated bacillus, is none the less capable of becoming infectious under certain conditions. The same researches have been made in a school in Normandy, on the border of the sea, in a place where there had not been a case of diphtheria for a long time, and the same bacillus was found there. Mr. Netter likewise found, some years ago, in a man who had been cured of pneumonia more than a year previously, the *pneumococcus*, which is thought to be the origin of pneumonia, and which had been cultivated in the mouth of the man spoken of, and preserved there. He also found in the mouth of healthy persons the *streptococus pyogenes*, the element of propagation of erysipelas and septicæmia. Now, a sore in the mouth or intestines, produced by an inflammatory malady, such as quinsy, bronchitis, typhoid fever, and the like, suffices to give birth to the gravest infectious accidents. Thus the use of some antiseptic in the nasal passages, in the mouth, and at the bottom of the throat is imperative. For this it is enough to wash these parts frequently with some alcoholic liquid perfumed with essence of cinnamon, of lemon, and the like, and containing antiseptics, such as naphtol or salol. At the present time, then, it is of the first importance to take constant hygienic care of the mouth, by washing, gargling, inhaling perfumes, and so on. The mouth and the nose are the apertures through which the grippe enters. Let us not forget it.—H. DE PARVILLE, *in Le Correspondant.*

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FOR MALARIA.

Use Horsford's Acid Phosphate. Dr. E. G. Davies, De Smet, Dak., says: "I have used it in slow convalescence and prevention from malarial diseases, where the drinking water was bad. I believe it to be beneficial in preventing summer complaints; also one of the best agents we have to rectify the bad effects of the drinking water upon the kidneys and bowels."

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SAVING POWER.—On a French railway requiring no locomotive in one direction, on account of being all down grade, it is proposed to use electric motors, and to make the descending train generate and store part of the current necessary for returning.

SERVANTS' COMMISSIONS.—Housekeepers in New York and Brooklyn find that tradesmen in the two cities have begun to adopt the Parisian custom of paying commissions to maids that do the household marketing. The thing has hardened into law in Paris, and the housekeeper who attempts to do her own marketing finds the prices even higher than those charged to the maids. The custom in New York and Brooklyn first took the form of Christmas presents from butcher, baker, and candlestick maker to their friends, the maids. No special secrecy was maintained, and now the grocer's commission is a tacitly recognized matter in some households. It is not unusual for club stewards to stipulate for this privilege, and only the other day one of the largest New York clubs woke up to the fact that it had within a year lost nearly $12,000 through corrupt relations between steward and tradesmen. It was found that all sorts of articles were billed at prices far above the market rate, and that goods delivered when put to the test of the scales turned out to be sadly short in weight.

BUFFALO LITHIA SPRINGS.–HOT SPRINGS.

TWIN REMEDIES IN

GOUT, RHEUMATIC GOUT, and RHEUMATISM.

WHAT THE HOT SPRINGS PHYSICIANS SAY.

Dr. Algernon S. Garnet, Surgeon (retired), U. S. Navy, Resident Physician, Hot Springs, Ark.:

"My experience in the use of BUFFALO LITHIA WATER is limited to the treatment of **Gout, Rheumatism,** and that hybrid disease '**Rheumatic Gout**' (so called), which is in contradistinction to the **Rheumatoid Arthritis of Garrod.**

"I have had *excellent results* from this Water in these affections, *both in my own person and in the treatment of patients for whom I have prescribed it.* Of course, the remedial agent is its contained **Alkalies** and their solvent properties.

"Hence it is a **prophylactic** *as well as a* **remedy** in **Nephritic Colic** *and forming* **Calculi** *when due to a redundancy of* **Lithic Acid.**"

The Late Dr. Wm. F. Carrington, Resident Physician, Hot Sp'gs, Ark., Surgeon (retired), U. S. Navy, Surgeon Conf. States Navy:

"BUFFALO LITHIA WATER, Spring No. 2, has signally demonstrated its remedial power in **Gout, Rheumatic Gout, Rheumatism, Uric Acid, Gravel,** and other maladies dependent upon the **Uric Acid Diathesis.**

"*It not only eliminates from the blood the deleterious agent before it crystallizes, but* **dissolves** *it in the form of* **Calculi,** *at least to a size that renders its passage along the ureters and urethra comparatively easy.*"

Dr. T. B. Buchanan, Resident Physician, Hot Springs, Ark.:

"*Send me five cases* BUFFALO LITHIA WATER, Spring No. 2. I have made use of this **Water** for **Gout** *in my own person and prescribed it for patients similarly suffering, with the most decided beneficial results.* I take pleasure *in advising* **gouty** *patients to these Springs.*"

Dr. G. W. Lawrence, Resident Physician, Hot Springs, Ark.:

"I prescribe BUFFALO LITHIA WATER with great confidence in all diseases of **Uric Acid Diathesis.** When travelling, it is my habit to use this Water as a guarantee for getting a pure water."

Dr. L. S. Ordway, Resident Physician, Hot Springs, Ark.:

"I have used BUFFALO LITHIA WATER, Spring No. 2, very extensively and successfully in my practice, in cases of *Rheumatism of the Arthritic* form, especially when complicated with weak, inactive *Kidneys, with inclination to Bright's Disease.* I have also found it an efficient remedy in *Albuminuria of pregnancy.*"

Dr. John A. Blaydes, Pres. HOT SPRINGS MEDICAL AND SURGICAL INSTITUTE, ARKANSAS. *Dr. R. O. Blaydes, Sec'y.*

THE STATEMENT OF DR. BLAYDES.

"We have made use of BUFFALO LITHIA WATER with patients of this institution in many obstinate cases of Gout, Rheumatic Gout, and Rheumatism, with uniformly excellent results, and in diseases generally of Uric Acid Diathesis regard it as an invaluable remedy. Its action in this class of cases indicates certainly the possession of some extraordinary property."

WATER IN CASES OF ONE DOZEN HALF-GALLON BOTTLES, $5.00. F. O. B. Here.

☞ DESCRIPTIVE PAMPHLETS SENT FREE. ☜

THOMAS F. GOODE, - Buffalo Lithia Springs, Va.

BUSINESS NOTES.

LAND-SEEKERS.

It will be of interest to those contemplating settling in the Northwest, to know that the choicest farming and timber lands in Wisconsin are tributary to the Wisconsin Central Lines. Settlers on these lands have all the advantages of healthful climate, good market facilities, abundance of fuel and building material, pure and sparkling drinking water, and other important benefits which cannot be enjoyed on the prairies of the West. No droughts, no cyclones, no grasshopper plague and no fever and ague. Now is the time to select choice lands at low prices. Wisconsin is considered one of the most prosperous States in the union. Located directly on the Wisconsin Central Lines in this State are the thriving cities of Burlington, Waukesha, Fond du Lac, Oshkosh, Neenah, Menasha, Waupaca, Stevens Point, Marshfield, Chippewa Falls, Eau Claire, New Richmond and Ashland. For tickets, time tables, maps and full information, apply to G. R. Fitch, D. P. A., Wis. Central, New York, or to Jas. C. Pond, General Passenger and Ticket Agent, Chicago, Ill.

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$100 REWARD $100.

The readers of this paper will be pleased to learn that there is at least one dreaded disease that science has been able to cure in all its stages, and that is Catarrh. Hall's Catarrh Cure is the only positive cure known to the medical fraternity. Catarrh being a constitutional disease, requires a constitutional treatment. Hall's Catarrh Cure is taken internally, acting directly upon the blood and mucous surfaces of the system, thereby destroying the foundation of the disease, and giving the patient strength by building up the constitution and assisting nature in doing its work. The proprietors have so much faith in its curative powers, that they offer One Hundred Dollars for any case that it fails to cure. Send for list of testimonials.

Address, F. J. CHENEY & Co., Toledo, O.

☞Sold by Druggists, 75c.

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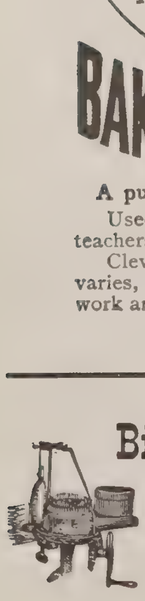
One rounded teaspoonful of Cleveland's Baking Powder does more and better work than a heaping teaspoonful of any other.
A large saving on a year's bakings.

BAKING POWDER

A pure cream of tartar powder.

Used in the U. S. Army and by teachers of Cookery.

Cleveland's is the standard, it never varies, it does the most work, the best work and is perfectly wholesome.



Bickford Family Knitter

Knits everything required by the household, of any quality, texture and weight desired. A. M. LAWSON, 783 Broadway, New York.

Mention the AMERICAN ANALYST.

Girls.

By Helen Ekin Starrett, in *The Forum.*

"Thousands who are now in shops and other organized industries would really prefer work in homes, if only the heavy, grimy, malodorous, *clothes-destroying* work of cooking and laundering were not required and expected of them."

Well—if this is true there's a good time coming for girls and the mistress too; for women (by millions) are coming to know, that *Pearline* saves the clothes on your back as well as the clothes in the wash; the paint on your walls—the sheen of silver—the lustre of glass and reduces the labor—drudgery—health breaking—temper and comfort wearing work of washing and cleaning to almost nothing.

Besides—the girl—the mistress—or both—are better satisfied with the results. It cleanses—restores original colors—but hurts nothing, not even delicate skin—luxurious for bathing—be among the bright ones and use *Pearline.*

Beware Peddlers and some unscrupulous grocers will tell you, "this is as good as" or "the same as Pearline." IT'S FALSE—Pearline is never peddled, and if your grocer sends you something in place of Pearline, do the honest thing—*send it back.* 192 JAMES PYLE, New York.

USEFUL INVENTION.—Mr. Granville Woods, a colored man, has made a successful invention that is just now attracting attention in the East. It is the method of supplying electrical energy to moving cars and trains. The cars, by this new system, will be supplied with power through wire brushes which make connections with "heads" from underground conducting lines. There will be no exposed wires. A test made in New York was successful. It is the first notable invention of a colored man in electrical engineering.

WEAR OF HEELS.—A shoemaker recently said to a newspaper reporter: "Very few men are knock-kneed, a fact that is proved by not one pair of shoes in a hundred coming in to be repaired with the heels worn down on the inside. The percentage of soles worn this way is a little larger, but that is often caused by the toes being turned in instead of out. About one man in ten will wear his heels down at the extreme rear, but for every one of these there are at least half a dozen who will wear the outside right to the welt before the center shows any sign whatever of giving out. Physicians say that this bow-legged tendency is the result of children being encouraged to walk before their legs are strong enough to bear the weight of their bodies, and if this is so, the error must be very general. In making shoes to order it is usual to run two or three extra rows of nails or brads where the tread is heaviest, and some customers ask to have iron protectors driven in.

FACTS FROM THE CENSUS.—One of our exchanges concludes, after studying the census, that probably no one who has not obtained information on the subject could make a reasonable guess at the number of places in the United States containing one thousand or more inhabitants. The guesses by the uninformed are usually from 10,000 to 15,000, but the United States census discloses only 3,715. Moreover, there are only 2,552 that have a population exceeding 1,500. At the other end of the line the returns are no less remarkable, for there are only seven cities with a population exceeding 400,000. There is abundant room for growth in these cities and towns, but the places with 1,000 or more population already contain 41 per cent. of all the total population of the United States. The larger cities, it appears from the returns, are growing more rapidly than the country at large. Thus in 1880 there were 286 places having 8,000 inhabitants or more, the combined population of such places being 22 per cent. of the whole. In 1890 there were 448 such places, containing 29 per cent. of the whole population.

Fine Table Wines

From our Celebrated Orleans Vineyard.

Arpad Haraszthy & Co.

Producers of the

ECLIPSE CHAMPAGNE,

530 Washington St.

SAN FRANCISCO.

GROWERS OF

Chateau d'Orleans, the highest grade Claret made in America.

Cabernet Blend, the richest and finest of Table Clarets.

O V Chablis, possessed of all the delicate pungency of its French counterpart.

O V Sauterne, with the exact character and *Seve* of imported Sauternes.

The **Chateau d'Orleans** and **O V Chablis** are sold in glass only.

Armour's

Extract of BEEF.

The best and most economical "Stock" for Soups, Etc.

One pound equals forty-five pounds of prime lean Beef.

Send to us for our book of receipts, showing use of ARMOUR'S EXTRACT in Soups and Sauces.

ARMOUR & CO., Chicago.

The American Analyst Club.

In looking about us to see how we can best serve our subscribers we have been reminded of an opportunity by the frequent receipt of letters asking us to purchase different articles for our friends. When we have been able to comply with such requests we have been gratified to find that our purchases have been satisfactory, and at remarkably low prices, and we have therefore concluded to establish an

American Analyst Purchasing Club.

The only conditions of membership in this club is that of being a subscriber to the American Analyst.

Located in New York City, and able to buy large quantities at a time, manufacturers will be ready to sell us goods of known quality at the lowest cash prices, and we will thus be enabled to save for our members all middlemen's profits.

We do this extra work at extra labor and expense in order to add to the value of a subscription to the American Analyst, and thus largely increase our subscription list. We withdraw all premium offers, and substitute this American Analyst Club with its innumerable advantages.

From time to time, as arrangements can be made, the number of articles procurable through the club will be largely increased. Until we shall have a larger list to offer we shall be glad to give information as to cost of any specified article, and procure it when ordered, and cash is remitted. All letters of enquiry must enclose stamp for reply. Samples cannot be sent.

The American Analyst,
19 Park Place, New York.

WATCHES.

A LITTLE USEFUL INFORMATION.

Every one wants a watch, and there is no good reason why this want should not be supplied. By making large purchases for cash, the Analyst Publishing Company is now prepared to furnish its subscribers with almost any kind of watch made at less than the lowest wholesale price. All these watches, even the cheapest, have the watch safety pinion, tempered hairspring, compensation balance, and are stem wind and and stem set—all modern improvements. All named movements and all adjusted movements are full jeweled.

CONDITIONS.

Now a word as to the exact conditions under which the American Analyst will procure these watches for its subscribers.

The American Analyst has no watches for sale. It has no lists or catalogues. It buys for subscribers as they order—merely to oblige them. It cannot buy cases with special patterns except at the regular prices. It sends nothing C. O. D. or on approval, and does not care to do this work except as a favor to subscribers, who can appreciate its value.

The American Analyst insures the safe delivery of each watch in perfect order. If not delivered in perfect order it must be promptly returned, and the insurance company will pay to us all expenses incurred. But it must be returned within thirty days. Any injury can be detected in that time, and after that time the buyer must be responsible for his oversight. A watch delivered in perfect order must be kept in order by the wearer. The American Analyst cannot guarantee that the wearer will do this, and any injury must be through his negligence and at his expense.

If a watch or case not named in the American Analyst is desired send a description, and the cost will be given.

Subscribers must be specific in stating what they want, and remit cash with order.

Address all orders and remittances to

The Analyst Publishing Company,
19 Park Place, New York.

QUALITY AND COST OF THESE WATCHES.

MEN'S AND BOYS' WATCHES.

The following are the prices for full-sized open-faced watches in silverine open-faced cases, screw back and screw bezel (front):

7 jewelled	$5 60
15 jewelled, nickel	10 30
Adjusted, nickel	12 65

Add $7 for Montauk and $10 for Monarch open-faced cases.

The subscriber may select his watch from either the Elgin or the Waltham factory.

The "named" movements of the American Waltham factory cost in open-faced silverine cases as follows:

P. S. Bartlett, adjusted	$12 65
Appleton, Tracy & Co., adjusted, gilt.	17 35
Appleton, Tracy & Co., adjusted, nickel	19 70
Crescent Street	24 40

Add $7 for Montauk case and $10 for Monarch open-faced cases.

The Elgin "named" movements in the open-faced silverine cases cost:

G. M. Wheeler, nickel	$10 30
H. H. Taylor, nickel, adjusted	15 00
B. W. Raymond, gilt, adjusted	17 35
B. W. Raymond, nickel, adjusted	19 70

Add $7 for Montauk and $9 for Monarch open-faced cases.

The foregoing will be furnished in engraved or engine turned gold filled HUNTING CASES at $10.50 *extra for Montauks;* $15 *extra for Monarchs.*

Two-ounce, open-face, solid gold, 14 carat U. S. assay cases, cost $30; three-ounce hunting cases cost $42, and 2½-ounce cases, either open or hunting, cost $36.

MEN'S WATCHES—SMALL SIZE.

The American Waltham Company alone make "named" movements 16 size. These are as follows, in Monarch, Crescent or Dueber hunting-case, full engraved:

American Watch Co., 24-jewelled	$100 00
American Watch Co., 16-jewelled	65 00
Riverside, nickel	35 00
Riverside, gilt	27 50
Royal, gilt	23 50

This is the exact Trust price to the jeweller. Open-faced cases average $3 less.

The Elgin factory makes the following movements in the 16 size, which cost in open-face silverine case as follows·

Seven jewels	$6 75
Thirteen jewels, gilt	10 75
Adjusted, gilt	15 75
Adjusted, nickel	17 75

Any 16-sized movement will be furnished in open-faced gold-filled engraved Montauks for $7 extra; Monarchs $10. In hunting cases, Montauks $10 and Monarchs $15.

SOME SPECIAL BARGAINS.

United States Walthams in the engraved Montauk hunting cases. $12.25 by registered and insured mail.

Boys' seven-jewelled, medium-sized (16) Elgin movements, cased in silverine hunting cases, for $7.60 each.

The cheapest fully adjusted man's watch is the celebrated Railway, in Montauk open-faced, gold filled cases at $23.65 net. The regular price of the movement alone is $25.

The John C. Dueber, in hunting case full engraved, for $25. The factory price is $27.

LADIES' WATCHES.

These are in three sizes, but the 6-size is the better time-keeper, and the favorite size for women. All are hunting-case, stem wind, pendant stem set, safety pinion and tempered hair spring.

The Elgin factory makes the following in both 6 and 0 sizes at the prices annexed for solid 14-carat gold engraved cases:

7 jewels, gilt	$25.00
11 jewels, gilt	27.75
11 jewels, nickel	27.75
13 jewels, nickel	30.00
15 jewels, nickel	33.50
17 jewels, adjusted	43.50

In Montauk cases, $10 less; in Monarch cases, $8 less.

In the 6 size, if the subscriber will leave the choice to us whether it shall be an Elgin or Waltham movement, it is nearly always possible to purchase one or the other, so that the cost in a pretty Montauk case will be but $13.75, and in a Monarch engraved, $15.75. But the subscriber who selects for herself must pay the prices before named.

SPECIAL BARGAINS.

United States Waltham watches for ladies, 6 size, 7-jeweled, in Montauk engraved hunting cases, for $12.50, by registered and insured mail.

The cheapest lady's watch, nickel movement, that can be bought in a Dueber-Hampden, 6 size, 11 jewels in settings, nickel movement, in an engraved 20-year Dueber gold-filled hunting case, $14.75.

A full-jewelled lady's watch, Hampden nickel movement, in Dueber case, cost $18.50.

ADJUSTED WATCHES.

The Crescent Street movement is the finest and costliest full-sized movement made in the Waltham or Elgin factories. It is the best in the world, and equal to the old chronometers, costing $600. It is adjusted to the utmost extent of human ability.

The B. W. Raymond is "the pride of the Elgin factory," and the costliest full-sized movement made by it. It is adjusted every way, ranks second only to the Crescent Street, and its admirers give it equal honor.

The Appleton, Tracy & Company ranks with the Raymond. It took the grand prize at the last Paris Exposition against all comers as the most perfect watch exhibited. The Crescent Street and Raymond were not competing, but thousands of others were.

The H. H. Taylor and P. S. Bartlett are each adjusted-to-temperature watches, and very great favorites on account of their low price.

We hope to be able to add new and desirable articles to this list from week to week.

HARTSHORN'S SELF-ACTING SHADE ROLLERS

NOTICE SCRIPT NAME OF Stewart Hartshorn ON LABEL, AND GET THE GENUINE

HARTSHORN

Pure LAGER BEER,
"IMPERIAL" and "CULMBACHER"
Brewed & Bottled
SPECIALLY FOR
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TABASCO PEPPER SAUCE,

OR LIQUID PEPPER.

Is simply the Pulp of the Ripe Pepper Extracted by Pressure.

The seed of this Pepper was obtained from Central America, and by careful cultivation in Louisiana for many years has been so improved in strength, flavor and aroma, as to have become a new variety of Red Pepper, superior to all others. The pulp is so handled as to retain all the flavor, strength, aroma and color of the ripe fruit, and to keep unimpaired in any climate. It excites the appetite, promotes digestion, and is pronounced by connoisseurs to be the finest condiment in the world. For medicinal purposes it recommends itself by its purity, strength and diffusible form.

Manufactured by E. McILHENNY'S SON,
NEW IBERIA, LA.
For Sale by all Wholesale Grocers.

RHEUMATISM AND NEURALGIA are being constantly cured by Robinson's "Sura Cura," a positive antidote for all impure states of the blood. Price, $1.00, sent by mail. Send for circular.

R. W. ROBINSON & SON,
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BLAIR'S PILLS.
Great English Remedy for GOUT, RHEUMATISM and KIDNEY COMPLAINTS.
SURE, PROMPT and EFFECTIVE.
Large Box, 34; Small, 14 Pills.
At all Druggists, and
224 WILLIAM STREET, NEW YORK.

EVERY one in need of information on the subject of advertising will do well to obtain a copy of ' Book for Advertisers," 368 pages, price one dollar. Mailed, postage paid, on receipt of price. Contains a careful compilation from the American Newspaper Directory of all the best papers and class journals; gives the circulation rating of every one, and a good deal of information about rates and other matters pertaining to the business of advertising. Address

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CHOICE
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The trade of all marketmen and meat dealers is solicited for our Wholesale Branch Houses, and the PUBLIC MAY REST ASSURED that in PURCHASING OUR MEAT from dealers they will ALWAYS RECEIVE THE BEST.

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UNION STOCK YARDS,
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DISTILLERS OF
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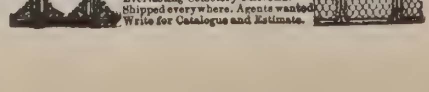

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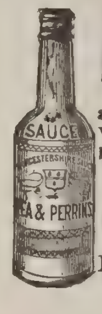

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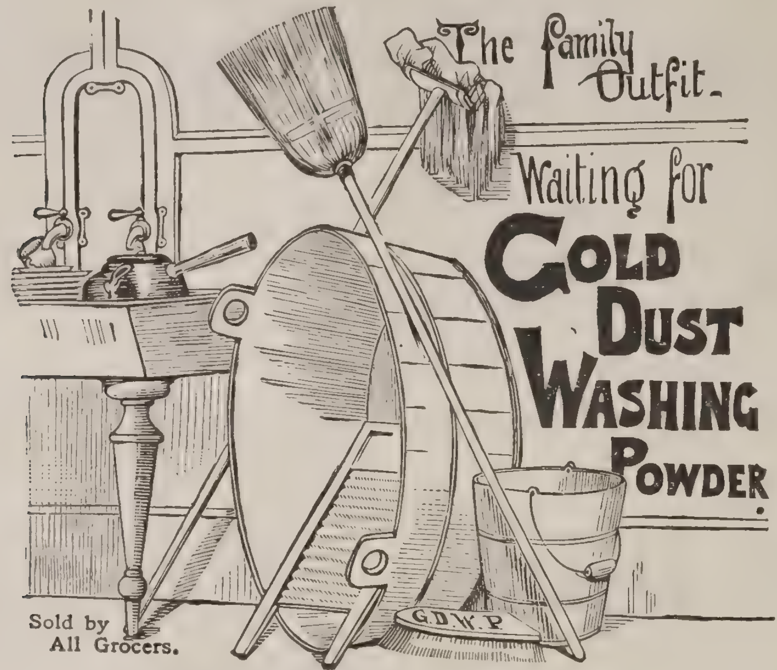
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CONTENTS.

About Tooth Brushes 148
Benefits of Olive Oil 146
Cosmetics and Powders 148
Editorials 145
The Consumer's Fault; Charities and Correction.
Killing Cure 146
New Help to Business 149
Phagocytes 148
Stale Candy 147
What is Electricity? 147

THE CONSUMER'S FAULT.

We think it important to give the benefit of our circulation to the following extract from the *North West Trade*. It is the plain truth, and emphasizes what we have always advocated, the necessity of selling pure goods by brands.

A WORD FOR CONSUMERS.

Of course no consumers are likely to have their attention particularly invited to this article, and in addressing them, as the above title implies, we have in mind questions for the consideration of the retail trade themselves. Scarcely a week passes in any considerable city without complaints appearing in the daily papers, of one sort or another as to the adulteration of food products. It is not uncommon among the great body of consumers to hear complaints at the quality of the service rendered and the goods offered by those who manufacture, wholesale and retail, such products. Now as a matter of fact, is not the fault for whatever adulterations there are, or whatever poor quality of goods is served, the fault of the consumer alone? We have little question that the extension to which adulteration is practiced is much exaggerated, and as the *Country Grocer* of San Francisco recently suggested, we believe that while the sophistication of food products should be condemned, the business would soon cease were the consumers to make quality of the goods they purchase the first consideration. As a matter of fact they do not do that. The first consideration is price. Cheapness is the insuperable obstacle in the way of good food service. Therefore, a great many of the laws framed to protect the consumer against adulterated and inferior goods, are absurd, since the consumer refuses to protect himself. Take the matter of canned goods alone, for instance. How many consumers pay the least attention to the brands they purchase? How many, indeed, know anything about brands? And yet how easy it would be for them to obtain such information that they might purchase intelligently and secure a good quality of goods. It seems to us the reason of a supply of inferior goods can be found right at the home of the consumers themselves—the fault rests with the very persons who do the complaining. Another and esteemed contemporary, the *California Fruit Grower*, discusses this matter in a very intelligent way. Orders are sent to the grocery for one or more cans of apples, pears, corn, tomatoes, etc., it says for the sake of illustration, and not in one case out of a hundred does the person ordering designate which brand of goods is desired. It adds: " Now there are brands and brands; some good, some bad, some of medium quality; and although the retail price is often the same the cost to the grocer varies considerably, and when no special brand is demanded he, of course, sends the goods upon which he realizes the greatest profit." The grocer is doing business for that profit; he would be a mighty foolish business man if he did not exercise a choice as to the goods he sold when a chance was extended to him. At the same time, every grocer learns that those customers who are discriminating will refuse inferior goods if they are delivered, even when the choice is left to the grocer; but as a matter of fact, it is never very profitable to kick afterward, on a fault for which one's own self is blamable. Now all this has a discouraging effect upon the manufacturers and packers who do have a high standard, and wish to carry on their business in accordance with it. This indifference leaves wide open the door for frauds of various kinds, and the dishonest packer or other food manufacturer, taking advantage of these avenues, offers a competition to the conscientious food producer, which frequently proves so costly that in self-defence he is compelled to abandon the attitude he has assumed, as an honest packer of good goods, and descend to the level of the dishonest packer of poor goods. We are strongly of the opinion that those grocers who are in the grocery business, not as a mere make-shift, not as a mere speculation, not as an experiment, but are in it for business purposes, as a business, to make not only a living, but to accumulate a surplus, would be very glad, indeed, to have their customers inform themselves as to brands of various goods, and to order their goods by brand. This practice, if it should once become common among customers, would enable the grocer himself to buy not only more intelligently, but to his own greater advantage. He would take less chances on stocking up with goods which he would have to work off as opportunity offered to him to place them where brands were not specified. It is always to the interest of any tradesman to know what his customer wants, and if he is an intelligent tradesman he will take infinite pains to satisfy this demand (and he cannot be a successful tradesman unless he does). The true remedy to correct the evils of adulterated foods, and the marketing of inferior and poor goods rests with that careless consumer who does not seek to inform himself as to what is good, who leaves the choice of his food products in the hands of his grocer, and who then not only complains to his grocer and about him, but rushes to the legislature to get laws for a protection he hasn't the intelligent self-interest to give himself.

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CHARITIES AND CORRECTION.

Until the present century the policy of Europe, in dealing with crime and pauperism, was the best possible, if the object had been to propagate and increase them both. The States of the New World necessarily copied many of the methods of the old. Unfortunately, along with much that was true and wise, they copied and perpetuated many old blunders. But with the advance of modern thought, especially with the enormous widening of the sphere of scientific knowledge, have come new and better ways of dealing with the defective, the criminal and the pauper. The National Conference of Charities and Correction which meets annually in one or other of the chief cities of the Nation, brings together a representative body of the people throughout the land, whose business it is to deal with the poor, the ignorant, and the criminal, or who are devoted as good citizens to the work of private charity. Its object is the introduction of enlightened methods of grappling with the evils and misfortunes of life. It combines the best philanthropy of all creeds and all shades of political opinion, upon the broad platform of humanity. It does not conflict with any form of existing benevolence, but it aims to place before the country, by aid of the press, such details of practical information, with the results of experimental altruism, as cannot but be helpful to all. The 19th session of this important National organization will be held in Denver, June 23 to 30, 1892. The preliminary programme has just been published and extensively circulated. It offers an attractive series of meetings; its topics include many of the important social problems of the day. It has standing committees upon State Boards of Charities, Reformatory Work, Kindergartens and Child Saving, Care and Classification of the Insane, Commitment and Detention of the Insane, Charity Organization in Cities, The Indian Policy in its Relations to Crime and Pauperism, The

SEE SOMETHING NEW ON PAGE 154.

Colony Plan for the Feeble Minded, Immigration and Migration between States, Defensive and Preventive Measures against Pauperism and Crime, and the Co operation of Women in the Management of Charitable and Penal Institutions. Each of these committees has charge of a general session of the Conference, and several of them will also conduct special or sectional sessions, in which they will discuss their subjects in detail. The membership of this conference is one of its unique features. It has no salaried officers and no selfish benefit to offer to anyone, so its doors are opened to all the world; whosoever will may come in, on a footing of the most perfect equality. The fact that you are interested in its work, makes you a member, and entitles you to a seat and a voice in its discussions. Anyone desiring further particulars as to reduced railroad fare, hotel accommodations, etc., may address Alexander Johnson, Secretary, Indianapolis, Ind., who will send circulars and answer inquiries.

THE BENEFITS OF OLIVE OIL.

A MOST VALUABLE MEDICINE.

There is no doubt but that the disease known as American nervousness, as well as the great prevalence of what might also be termed our American consumption, and the still wider-spread condition known as American dyspepsia, would all be greatly lessened by a proper use of olive oil. The writer has no doubt that had the old round-headed, broad-brimmed-hatted, long-visaged, and blunderbuss-carrying Puritans used more olive oil and less unnutritious slap-jacks and apple dumplings, America would be less affected to-day by that leaven of pessimism, which is such a prolific source of ill-health, moral, mental and physical. In other words, had some philanthropists gotten hold of old John Knox and given him a daily greasing of oil, and made him breakfast on an optimistic salad with a parsley omelet and a generously sized trout, done brown in sweet oil, I don't think that the following century would have been so much of sorcery, witch-burnings and mental sufferings, nor the succeeding ones of much dyspepsia, nervousness or consumption. Olive oil is as much required to form a healthy mind as it is for a healthy body. American dentistry, of which we are justly proud, is only a result of a neglect of proper diet observances, of which we should be as justly ashamed. Nations who use a sufficiency of fats and oils are proverbial for their sound teeth, as well as for the clear complexion and beautiful hair. Madame Recamier did not owe her beautiful complexion and prolonged health to any specific face powder or skin wash, as the manufacturer would make you believe, but rather to the artistic and scientifically prepared and well-oiled salads which she ate at her lunch, as well as at her dinner. Cleopatra and Zenobia were indebted greatly to olive oil for their beauty and complexion, and Lucretia Borgia was said to eat salad three times a day. A dry, harsh skin, and a blood charged with the toxæmic products of a too liberal animal diet, are not elements calculated to promote a Christian spirit. A daily greasing would have done away with most of the timid suspicions and cruelty of Louis XI., as well as with many of his superstitions, and the replacement of the gross animal diet indulged in by Heliogabulus and Nero by a vegetable diet intermixed with properly constructed salads, would have done away with most of the cruelties of these two monsters. Moral, mental and physical degeneration may all be said to be conditions due to and induced by gouty diathesis, and may result from improper diet, mal-assimilation, or poor blood. Olive oil inunction will relieve an infant of its exasperating peevishness, and liken him to one of Raphael's Holy Family in countenance or disposition. Olive oil has the same effect on adults, and I have no doubt but that if the State would try the experiment it would find that a daily bath and an olive oil inunction would be as efficacious in driving the devil out of the San Francisco hoodlum as it was formerly done through the influence of sprinklings of holy water on the possessed of the Middle Ages. The establishment of public baths and the purchase of a few gallons of olive oil would lessen the pressure on Folsom and San Quentin Prisons, as well as it would diminish the committals to Stockton and Napa Asylums. The olive oil has no superior as an appetite provoker. The freshly-pressed oil from the green olives was highly prized by the Roman athletes as imparting strength, agility and suppleness to the physique. Olive oil has been used as a medicine in doses of from one to ten ounces. In administering oil it should not be forgottten that any unaccustomed substance may cause the stomach to at once reject it. That such a happening occurs in taking olive oil should not at once be taken as evidence that it is an unnatural medicine, as too rich soups, lobsters, oysters, fresh pork, or even a glass of milk, when they are strangers to the stomach, are very apt to produce the same effect. Bearing this in mind, we should always, when giving oil for its large dose effect, use the precaution to add some wine, vegetable vinegar, or lime or lemon juice, to insure its not offending the stomach. Children are often affected by a persistent, harrassing, debilitating diarrhæa, due to the agglutination of some shred of tomato, grape, or other fruit akin to the mucous lining of the intestines. The cause is here a simple mechanical irritation alone, to be removed by the judicious but persistent use of olive oil. Olive oil is one of our safest vermifuges in the cases of children. It should be given in ounce doses, and frequently repeated. It is harmless, as it does not provoke active purging, and if the child's stomach does not reject it, it will often do its work without any additional drug. In cases of tapeworm, it has often carried away the gentleman, head, tail and body, simply by its weight and volume. In cases of severe pains located in the region of the kidneys, olive oil taken internally in medium doses has often proved beneficial in granting prompt relief. It has also been used with success in cases of painful urination, strangury, and in cases of what is popularly termed gravelly urine. Simple diarrhœa, dysentery, colicky pains, flatulence or constipation have all been relieved by the prompt and generous use of olive oil. There is nothing that will act more energetically in a case of imprisoned intestinal gases, accumulation of fæces, or in some cases of hernia or rupture, than a large dose of olive oil mixed with a small portion of glycerine and a few drops of turpentine; if the latter are not obtainable, then the oil should be given singly. Teething children should always be oiled, the oil being applied at least twice daily. Nervous, fretful, peevish children obtain great relief by a warm-water sponging and an oiling. Rickety children, suffering from poor assimilation, will improve wonderfully on sweet oil inunction. Children suffering with fever and a high degree of temperature can be relieved by a tepid sponge bath and an oiling. Cases of scarlet fever I always oil, and keep on oiling from first to last; especially during convalescence is this oiling a great safeguard. Olive oil, taken both internally and by inunction, has often given great results in cases of dropsy, either abdominal or general. In Europe it has been used with signal benefits in epidemics of yellow fever, and in Asia and Africa it has been used with equal benefit in the plague. In cases of neuralgia, rheumatism, gout, chronic skin diseases—in fact, with diseases in general which are liable to result or originate in mal-assimilation, malnutrition, or imperfect blood depuration, olive oil has often afforded signal relief. In the fevers of adults it is equally of great value, being useful in reducing the temperature and nervous excitement. Olive oil has been given with success in cases of mushroom poisoning, being liberally mixed with powdered charcoal. In general, it may be said that olive oil is a safe and efficacious antidote in most cases of poisoning, with the exception of phosphorus, where it should not be used.—DR. P. C. REMONDINO (*Abstract from Olive Growers' Proceedings*).

THE KILLING CURE.

A MEDICAL JOURNAL'S VIEWS ON THE BICHLORIDE OF GOLD TREATMENT.

"Drunkenness *is* curable"—thus testified John Flavel Mines, LL.D. (Felix Oldboy), in the October number (1891) of the *North American Review*. He was perfectly sincere, and it seemed at the time as if no one could possibly be better qualified or have a better right to speak authoritatively on the subject than he; for he had been a drunkard for twenty years, before, as "a modern Ponce de Leon, he started on a voyage of discovery for the fountain of renewal youth and restored manhood," supposed to be located at Dwight, Ill., the dipsomaniac's Mecca, where Keeley, the High Priest officiates, under whose care he placed himself, leaving at the end of six weeks, as he believed, perfectly cured. It is pathetic to read the account he gives of twenty year's sufferings as a victim to the drink demon, and of "struggles as fierce as death and blackness that was despair," through which would come "gleams of the sunshine of memory, painting the quiet old home in which the little lad sat by the side of his grandmother and her cat." His graphic description of the treatment he underwent, as well as his other experiences at Dwight, must be hope-inspiring to those who are similarly situated; how to his great joy he found that the craving for drink had entirely disappeared, and was not even rekindled, when Dr. Keeley handed him a tumblerful of whiskey and told him to drink it, which he did without fear, trusting implicitly to the assurance that he *was* cured, and that, if he needed whiskey, there would be no danger in taking it. A miracle had, it seemed, been wrought within him, and his faith knew no bounds, for he wrote: "I do not believe, I know that I am cured, and am satisfied as to its permanency;" and then, almost before the ink could have had time to dry, he went on a big spree and died whiskey-logged. That he was honest in his convictions as to the efficacy of the "Bichloride of Gold Treatment" in curing dipsomania we have no reason to doubt, and it is but natural that we should give free vent to his feelings. In this he was, we believe, prompted by a laudable desire to benefit his fellow-sufferers; and thus he became unwittingly author of one of the most remarkable quack advertisements that has ever been published. Editors are, however, discerning, and we expressed our astonishment at the time (see vol. xxxiv., page 618) that a first-class journal could sink so low in infamy as to prostitute its pages to such charlatanism. But quacks have usually plenty of money, and know well how to apply it to their own advantage; hence we are not at all surprised, now that we have a "Keeley Institute" at Los Gatos or "Jamburg," as it is most appropriately called since it became a fashionable resort for aristocratic inebriates (common drunkards don't go there), to see the columns of our great dailies filled with the latest doings of Jamburgdom. We understand that many of our good temperance people have also succumbed to the wiles of the notorious quack firm, Dr. Leslie E. Keeley & Co., whose representatives in this State, Messrs. Ramsey & Sussdorff, are "Keeleying" California's young bloods and hoary old sinners for all they are worth, and that at a recent entertainment given by the "Bichloride of Gold Club," the temperance societies attended *en masse*. Los Gatos is rapidly acquiring fame. We are told that there is no lack of talent there, and that it is augmented by the "Keeley Institute." Every man who is not a drunkard—beg pardon, we mean an inebriate—wishes he had been one. Life without a previous jag is life without distinction. The man who looks back upon a virtuous past is unrecognized, and the old soak is the village pride. The presence of the "Keeley Institute" at Los Gatos, is said to have greatly increased the profits of the bars there, because all the new arrivals try to beat the game as hard as they can until the bichloride shall have had time to get in its work. There will, no doubt, also be a boom in real estate, for saloons, brothels and gambling dens will multiply, and respectable people will have to assimilate or emigrate. And thus will the city suffer for harboring iniquity, even though, with the deluded temperance people, it may be acting in good faith, believing Keeley and his gang to be the true deliverers from the bondage of drink and the exterminators of our greatest curse, the saloon. But let us examine other witnesses. This is what an educated physician who signs himself "A Victim," writes in the *Weekly Medical Review*, December 19, 1891, of his experience with the notorious Keeley. "Being a graduate, and having taken an *ad eundum* degree at the noted institution at Dwight, Ill., the Mecca for inebriates, I would like to tell of an interesting and profitable experience, and the doctor's views of alcoholism and dipsomania. About two years ago, before Dwight had became so generally known, and had the (false) reputation of curing inebriates, I thought I would visit it, as my desire for drinking was somewhat expensive. Having arrived, he began with a hypodermic injection into the left arm of the mysterious pink liquid which constitutes a part of the "cure." Later I was given a bottle labelled No. 1. Directions: Teaspoonful in wine-glass of water every two hours. This continued for three weeks until I was discharged as "cured." I left, and with the same desire as when I arrived. I wrote him telling him I was no better, and he advised me to return for "reinforced" treatment. The second trip was made and he confidentially suggested me to say I had returned for neurasthenia, as it would prejudice his patients to see me return. I suffered my arm to be jabbed four times daily for another three weeks (until it swelled to three times its normal size) with his aniline-colored solution of atropia and strychina, to the same effect. He enjoined me to abstain from coffee, tea, carbonated waters, spices, etc. Then to "crystallize" in my cure, and I would be entirely well in one year. Some business affair called me to Chicago, and I met several of his old "cures," with the familiar salutation from them to join in a sociable drink. I inquired of several, and learned of none that "stuck" for three months. In this city I know of fifteen cases, all graduates, and not one has been deprived of his desire for strong drink. His treatment is said by most of the old residents of Dwight to have been originated by a chemist in Chicago named Hargrave, formerly of Dwight. A reputable physician of Chicago informed me that Hargrave denies the presence of gold in the nostrum, but says it contains the red bark of cinchona and tinct. nux vomica combined with other bitter tonics for the alcoholics, and the same with the addition of Jamaica dogwood for the opium habitues. For the opium habit he substitutes the alkaloid of codeia, with a large dose of sulfonal at bedtime, when not having given full dose of codeia. The institution admits that about five per cent. of the patients do not remain cured. I have failed to see one permanently cured from the number of cases that have come under my observation. One morphine patient, after having left, received a letter from Dr. Keeley asking him if he had any desire for morphine. He told him in reply that he had not the slightest desire for the cursed drug. Ten minutes previously he borrowed my hypodermic needle and took eight grains. He was not falsifying, as he had all he required at the time of writing. To conclude, I believe that confinement would have the same effect in three weeks as the double chloride of gold and sodium. Quite an amusing incident occurred during my last visit. Mr. O'B., of a small town in Iowa, was so enthusiastic about his remarkable cure that he published in an Eastern paper about his "crystallization," and felt confident in its permanency. He was elected President of the Keeley B. C. of G. Club. Several days after the publication Mr. O'B. came to town "loaded" in company with his brother, whom he had brought for treatment. Dr. Keeley was very much excited, and lost no time hustling him off on the first train. This had been discovered by some of the patients who left very shortly afterwards. The doctor's theory of hallucinations and delusions accompanying alcoholism is that the contracted pupil acting as a lens to the micro-organisms in the humors of the eye causes the patient to see snakes, etc. Gold, he says, has a powerful affinity for the nerve centres, according to Paracelsus. And he, like Paracelsus, only in the nineteenth century, is practising and advertising a fraud. We hope that our readers will take a note of this and warn their patients against this huge swindle. —*Pacific Medical Journal.*

STALE CANDY.

WORSE THAN IF ADULTERATED.

A correspondent in the Baltimore *Sun* expresses the opinion that much sickness is caused among children by eating stale candy bought by jobbers from the wholesale dealers at a nominal price, and put up into packages known as "grab bags." He asserts that candy of this class is often green and mouldy, and unfit for food; and Health Commissioner McShane has indorsed this last statement. Now, we are not supposed to bandy words with either of these gentlemen about stale candy "deranging the digestive organs and causing irritation of the stomach," as Commissioner McShane puts it. The sentiment itself is all right, or pretty nearly right; it is the fact upon which they are supposed to be based that are open to dispute. We have never heard of candy so very stale as to be green and mouldy; but, whenever it has reached that stage of decay, we have no hesitation in saying that it is very likely to work all the mischief attributed to it, and its sale, whether in "grab bags" or otherwise, should entail on the seller the severest penalties. Our opinion is that when sickness occurs among children from eating candy, the result is far oftener due to excessive indulgence of the habit than of the bad quality of candy eaten. The best and purest candy made will cause the results named if eaten to excess, and in this respect candy does not differ from ice cream or tenderloin beefsteak, and there is no reason why it should. This theory finds confirmation in the fact that just before Christmas several samples of candy, thought to contain deleterious coloring matter, were brought to the Health Office of Baltimore, but an analysis proved them to be perfectly pure. In referring to this matter, Dr. McShane states that the local Health Board of Baltimore has no authority to seize adulterated food products, this privilege being vested exclusively in the State Board of Health.

WHAT IS ELECTRICITY?

A DISCUSSION OF THE SUBJECT.

The answer to this question has been far from finally and absolutely determined. Certain laws and formulæ have been evolved from the study of the subject, which are reliable and accurate in their application. It is certain that the phenomena attending the presence or manifestation of that peculiar power of nature known as electricity, are as well organized, and are as immutable as in the other better known forces. In studying this question, it is well to see what other persons have thought and written about it, and then we may be better prepared to determine for ourselves. There is still some question about its identity, so we are at liberty to accept or reject the theories as they are presented. In a work on electricity, published in 1799, I find this definition: "Electricity, a natural agent or power, generally called the electric fluid, which, by friction or other means, is excited and brought into action." This definition would be considered very apt and conservative for this day and generation, notwithstanding the fact that nearly a century has passed since it was written. Perhaps the latest definition given to day is: "Electricity, the name given to the unknown thing, matter, or force, or both which is the cause of electric phenomenon." Dufaye, Symmer, and other early scientists, established the hypothesis of two fluids. They believe that there was electricity of two opposite kinds, positive and negative, each a separate and distinct fluid in itself, but that they were never found singly and alone. The union of equal quantities of the two fluids constituted the neutral fluid, which was supposed to exist in large quantities in all unelectrical bodies. When a body was electrified, it was supposed to gain an additional quantity of one fluid, and lose an equal amount of the other, so that the total amount of electric fluid in a body was never changed. This in brief is the two fluid theory. The one fluid theory was compounded by Franklin, and it is the theory generally accepted for want of a better one to-day. It supposes the existence of only one electric fluid, which unelectrified bodies possess in a certain normal amount. A positive electrified body has more, and a negative electrified body has less than its normal amount. There are a number of complications in this theory, which Aepinus modified in order to agree with the Newtonian theory of gravitation, yet, with its faults, it is the one referred to by most of the text-books, and the only theory now to explain the various manifestations of electricity. We unquestionably know more to-day about the practical application of electricity than any generation has known before us. The theory of the science has not been as satisfactory in its growth as has been the knowledge of it, although we know more, certainly, what electricity is to-day than we did twenty years ago. Some things are beginning to be known that were only speculation a few years ago, and old theories are being modified to suit our greater knowledge, until the books of our school-days seem incompatible to the student of to-day. The most recent theory of electricity is, that it is a mode of ether. In order to establish this theory, it is necessary to transfer the question of the existence of ether from speculative philosophy to that of absolute reality. There has been as much doubt in regard to the existence of an all-pervading ether as there has been in regard to the existence or form of electricity, and we are not yet prepared to accept this theory. Heat was supposed at one time to be a form of matter; now it is known to be a form of energy—or, as Tyndall says, a mode of motion. Indeed, heat, light, electricity, magnetism, and chemical affinity have all formerly been regarded as kinds of matter, "imponderable elements" they were called in contradistinction to other "material elements." Each of these so-called imponderable elements is energy manifested by different effects. Heat may be transformed into electricity, which is another form of producing a different effect, or the process may be reversed, and electricity may be transformed into heat. Again mechanical motion may be transformed into either or all—electricity, heat, light, magnetism or chemical effect—while a reverse process will convert heat, light, electricity, magnetism, and chemical effect back into mechanical motion. We have mechanical motion to produce electricity from our dynamo. We lead a portion of this electricity to an incandescent lamp and produce heat. When the filament has received sufficient heat to bring it to a point of incandescence, a portion of the heat, or primarily, electricity or motion is transformed into light. This light may be used in process of photographing, which is a chemical effect, or a portion of the electric current may be used to electroplate, which is also a chemical effect. Our chemical bath becomes a storage battery, and if its poles are connected directly, to our dynamo, a portion of the energy given to it by the dynamo will be returned as mechanical motion, by turning the dynamo as an electric motor. We see by this illustration that these effects are interconvertible. If these manifestations called heat, light, electricity, etc., are different forms of energy, they have always been such. Thousands of years have passed before this became known, but the lack of our knowledge has not affected the facts. Is it not possible that electricity is merely an effect? Is it not reasonable to suppose that this condition of electrical equilibrium extends to all matters and to all space? Our methods of producing electricity are simple means of disturbing the electrical equilibrium. The forces from which all motion comes—electricity, heat, light, magnetism and chemical affinity—are the active agents of the universe. All material matter is simply acted upon, and these great vital giants are nothing. They are neither fluid nor solid. We have them as one form of energy; we easily transform them into another. But, back of all, are they not the several manifestations of some one great form of energy? In conclusion, electricity is a condition, an effect of matter, and it is not peculiar to any material. This condition in a state of equilibrium prevades all matter and all space, ready to produce an effect when its equilibrium is disturbed; and we know of several ways to disturb the equilibrium—by magnetism, heat and chemical effects.—*Abstract*, *Electrical Industries*, by F. BAIN.

PHAGOCYTES.

THE WARRIOR CELLS (DEVOURERS).

Our body is a well organized state.* The cells with which life is so intimately bound up are its citizens, and the number of these citizens is legion. In comparison with the cells in our body the human population of the earth is insignificant. The red blood corpuscles alone, whose function is to carry and distribute oxygen, are estimated at approximately twenty-five billion in the body of an adult man. These industrial communities, although shut in from the outer world by a panoply of skin, are by no means secure in the enjoyment of a tranquil existence. Devious highways connect their most sheltered recesses with channels communicating with the outer world, and through these they are assailed by legions of no less insignificant foes, who invade the several provinces of the kingdom to lay waste and destroy. These invaders are the bacteria, which are now recognized as the agents of so many diseases. Nature has endowed our organisms with forces to resist disease germs, and cases occur daily in which people are restored to health by the agency of these unknown defenders. The cells proper to the system are under investigation, and among them some investigators profess to have discovered warrior cells, which in a certain sense may be regarded as a standing army of defence, and their function being to fall on and devour the invaders, they have been styled phagocytes. These defenders of the human system have long been known, but their function, until recently, was not suspected. Every one of our readers has heard or read of the white corpuscles in the blood; these are our anti-bacteria military—the most simply uniformed and most simply armed troops in the world, for they belong to the simplest forms of life. These white blood corpuscles, or leucocytes, are simple naked cells, consisting merely of a speck of protoplasm and a nucleus, but in spite of their simple organization, in spite of the absence of differentiated organs, they nevertheless act as other creatures act. They have neither fins nor feet, but are, nevertheless, capable of progress. This is provided for by a property of protoplasm which admits of their putting out tentacles in one direction, which tentacles draw the body after them. They seize their food with these tentacles, draw it to them, enfold and assimilate it. The tentacle which serves first to propel towards its prey, and then to grasp it, is finally used as a stomach in which to digest it. The nucleated speck of protoplasm, in spite of this structural simplicity, is further endowed with sensation and the power of reproduction. Such are the white corpuscles of the blood. At periods of inaction they present the appearance of colorless round balls; they are not found in the principle veins, being unable to stem the current. The seat of their activity is in the smaller veins and capillaries, where they wander at will, prey and eat like the beasts of the forest or the monsters of the great deep. The number of these white blood corpuscles in a grown person is estimated at approximately a hundred million. Related forms of the white blood corpuscles are found in the lymph, chyle, and other fluids of the system, even in the crystalline lens of the eye, where they traverse the interstices of the membrane, like adventurous explorers cut off from the main body of their race. Similar wandering cells, with amœba-like movements, are also diffused through the lower orders of the animal kingdom, and in insects, and their study in these forms has led to some very interesting conclusions as to the part they play in metamorphosis and evolution. An opportunity for studying their activity in living forms is afforded by the larvæ of sea-urchins and star-fish, whose skins are frequently transparent. The Russian Zoologist, Metchnikoff, has established that the leucocytus in a manner purify the blood. On the introduction of a speck of carmine or dust they immediately close themselves upon it. In all evolutionary processes and transformations of the lower animals there are portions of the tissue which cannot be utilized in the new structure. They are thrown off as debris, and the leucocytes enclose and assimilate them. The same course is pursued in the metamorphosis of the tadpole; the leucocytes congregate in the tail and consume it. So, too, in the metamorphosis of insects, they perform the function of removing all unutilizable tissue, and, practically, of converting it in utilizable material, for these roving cells, at length weary of their active independent existence, build themselves into the tissues of the organism to provide for growth, or for pair of the waste of redecay. cells phagocytes, that is devourers, and, as we have seen, they constitute an organized sanitary police. The phagocytes prey also upon all foreign substances in the system, and consequently upon all invading bacteria and disease germs. But the phagocytes are by no means invincible. They, too, are liable to defeat, and it is observed that the phagocytes of different animals vary in their attitude towards bacteria. Indeed, some investigators are of the opinion that the invading armies in warm-blooded animals prey on the white blood corpuscles; but even those who reject the phagocyte theory, admit that there are cells proper to the system which oppose the invaders. Bacteriology is the youngest branch of the tree of knowledge. It has already achieved many triumphs, and will doubtless soon solve the riddle of the precise relation of the micro-organism to the cell. If at first glance it seems shocking to reflect that our bodies are the seat of vast communities who rove over it as over their own domain, it should console us to reflect that in the pursuit of their own well-being they are undesignedly efficient agents in achieving ours also. In fact, they are an army of sanitary police, evidencing individually intelligent purpose in the overthrow of numerous foes against which man himself has hitherto been powerless, and whose tactics he does not even understand.—C. VON FALKENHORST, *in the Bacteriological World*.

TO TAKE PAINT OUT OF CLOTH.—Carbolic acid is recommended as being thoroughly effective in removing all traces of paint, even when dried upon the cloth. "The ordinary carbolic acid will remove the paint from dark cloth, but for light goods the purified acid must be used. A little soap and water applied with flannel will remove all traces of the acid."

COSMETICS AND POWDERS.

WHAT THEY CONTAIN.

Lorenze Elite Powder contains bismuth.

Bailey's Swan Down Face Powder. A form of carbonate of lime, elutriated.

Tetlow's Swan Down contains zinc oxide to the extent of thirty-five per cent.

Tetlow's Superb Gossamer contains zinc oxide, sixty per cent.

Pozzoni's Medicated Complexion Powder contains a form of carbonate of lime with bismuth, and a very little iron as ferric oxide.

Pozzoni's Dove Complexion Powder consists of carbonate of lime, with a trace of manganese as the trimetallic tetroxide.

Linden Bloom contains a little zinc oxide.

Luxury. The alcoholic solution to be prepared and used. This solution, as directed, contains a little bismuth salt.

Wetmore's Toilet Powder contains eight per cent. of zinc oxide.

Laird's Bloom of Youth contains thirty-two per cent. of zinc oxide.

Dr. Hebra's Viola Cream. "For freckles, moles, sunburn and tan. Apply a small piece before retiring, rubbing it in thoroughly. Repeat each night until all blemishes disappear." Contains corrosive chloride of mercury to the extent of two and eight-tenths per cent.

Hagan's Magnolia Balm. Liquid, with a pink colored sediment. The sediment is almost wholly zinc oxide, which constitutes twenty-two and four-tenths per cent. of the whole article.

Malvina Cream contains bismuth.

Nelson's Scent consists of carbonate of lime, perfumed.

Lotos Powder contains bismuth and a trace of iron.

A few popular remedies for rheumatism have been reported upon by Mr. Hubbard. Athlophoros was analyzed and found to consist of salicylate of sodium, acetate of potassium, and sugar, colored probably with caramel. One dram of the acetate, with one half dram of the salicylate, and four ounces each of sugar and water, colored, will represent the composition. Hibbard's Rheumatic Syrup, "entirely vegetable," contains cascara sagrada, and analysis cannot readily determine as to the presence of the other vegetable drugs announced on the label. It contains salicylate of potassium (not so announced), and some sugar and a little alcohol. Arthrophonia, not completely analyzed, was found to contain salicylate, tartrate, and acetate of alkali bases, with sugar and oil of wintergreen. The published analyses of certain other remedies of this class, gathered from various sources, are included in the paper.—*Michigan Proceedings*.

ABOUT TOOTH BRUSHES.

MOSTLY MADE BY THE JAPANESE.

The Japanese being a progressive nation, skilled in all branches of manual labor in which great patience is a prime requisite, and a people whose temporal necessities are limited and cheaply supplied, have of late years acquired considerable importance in the markets of the world as manufacturers of articles which other people have found it unprofitable to produce. Although at present a comparatively insignificant factor in tooth brush manufacture, the Japanese promise in course of time to surpass the French who now hold the palm as producers of those little considered, but absolutely indispensible adjuncts of civilization. Curiously enough the Japanese learned the art of making tooth brushes from the Americans. The first tooth brush factory in Japan was established some four or five years ago, as the result of a purchase, outright, of a plant that had been operated in this country for a number of years on anything but a paying basis. The fact is that the manufacture of tooth brushes has never been a profitable business in this country, for the reason, above all others that the disparity in the cost of labor here and abroad on this class of work is so great as to place the American manufacturers at a very decided disadvantage. That as good if not better tooth brushes could be made here as abroad is beyond question, but unless the manufacturer had secured a special reputation for his goods he was nowhere in the race for supremacy when competing with the cheaper product. Ten years ago there were about a dozen concerns engaged in the industry in this country. To-day there are not more than three or four actively employed in the business. Of these one is making a special brush, covered by patent, the invention of a dentist, and enjoying profitable, though comparatively limited, trade. Of the others at least three, who at one time did a large traffic in the article, have entirely abandoned the business. Another has reduced his working force from fifteen or twenty hands to one or two. The others continue to manufacture on a limited scale. So-called American tooth-brushes are still to be found in the market in large quantities, but it is claimed by those who ought to know that they are made in Europe, generally France, and are there stamped with the name of an American firm. In fact any one who will buy fifty or more gross at a time from French or probably any other European or Japanese manufacturer, is entitled to have his name stamped on the handle. That is why some of the larger retail concerns in this country are able to sell brushes of their "own manufacture" at prices with which it would be impossible for a legitimate American manufacturer to compete. We have said that the chief obstacle to the profitable conduct of the industry in this country is the cost of labor. In Europe women and young girls are employed at a maximum wage of a dollar a week. In the United States the cheapest labor to be had costs at least three dollars per week. Here the labor is continuous and the employer exacting. There probably the larger proportion of the brushes made at home by the operators in odd moments snatched from other duties. Even school children are impressed for the work devoting such time as they have to spare between studies to making tooth brushes, and thus adding a few pennies per day to the family income. Such a thing is not practicable in this country and for that reason the American manufacturers have found it impossible to compete with their foreign rivals. Another disadvantage the American producer labors under is that he has no market, at profitable prices, for any but the best brushes he can make, whereas the foreign manufacture finds a profitable sale for the poorest kind he turns out. There are brushes to be bought in this market to-day that cost the importer no more than one and a half or two cents apiece, the duty of forty per cent. included. The labor alone on a brush of the same grade would cost the American manufacturer five cents.

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* It is hardly needful to observe that all bodies, animal or vegetable, are composites of cells, not only the solid tissues but in large measure the fluids also; that the cell, a bladder-like formation of minutest size, is the beginning of all structural life, and that the most minute living bodies known by the aid of the microscope, the microbes, bacteria, bacilli, *et al.*, are individual cells, and that each cell has within itself the principle or potency of life, the power of enlargement or development, and perpetuation of its distinctive individual species, the capacity of struggling for existence, and the development of characteristic tendencies as against antagonistic cells or other agencies. [*Sec.*]

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LARGE TELEGRAPH OFFICE.—The London telegraph office is the biggest in the world, over 3,000 operators being employed and upward of 30,000 batteries being used.

ELECTRICS.—The vocabulary of electricity is daily being augumented, and now it is proposed that as the science of electricity has no name of its own it shall be called "electrics."

UTILIZING FALLS.—A syndicate of Swiss and English capitalists has been formed to utilize a part of the falls of the Rhine at Lauffenburg for the generation of electric energy. The water will be led to turbine wheels and 7,000 horse power will be developed.

EXPANSION—The difference in the length of the cables in the East river bridge, Brooklyn, when the thermometer registers zero and when it registers 100 degs. above is 2 feet and 4 inches. The difference in the rope which hauls the cars is 7 feet and 6 inches.

COMPLEXION.—A few drops of benzoin in the water will be apt to give the complexion a slight tinge of color.

CHRONOGRAPHS.—Chronographs are now made that are capable of measuring to the ten-thousandth part of a second.

BORAX FOR HAIR.—If the hair is very greasy try washing it in warm water, in which a pinch of borax has been dissolved.

EARACHE.—For earache, with which little children often suffer, lay upon the ear a flannel bag stuffed with hops and wrung from hot vinegar.

SOOT ON CARPET.—In taking down the stove, if any soot should fall upon the carpet or rug, cover quickly with dry salt before sweeping and not a mark will be left.

HAIR TONIC.—A good tonic for the hair is of salt water, a teaspoonful of salt to a half pint of water, applied to the hair two or three times a week. The effect at the end of a month will be surprising.

TO REMOVE SHINE.—The shine can be easily and quickly removed from one's gowns by a gentle friction with emery paper. Don't rub too hard, just enough to raise a little nap, and then, in the case of cashmere or other smooth goods, go over the place a few times with a warmed silk handkerchief.

ABOVE THE ATMOSPHERE.—If it were possible to raise above the atmosphere which surrounds the earth the sun would look like a sharply defined ball of fire, while everything else would be wraped in total darkness. There could be no diffusion of light without an atmosphere or some similar medium for the sun's rays to act upon.

THINGS WORTH KNOWING.—A square mile contains 640 acres. A hand (horse measure) is four inches. Blotting paper is made of cotton rags boiled in soda. For every foot of stature a man should weigh twenty-six pounds. In Australia no newspapers are published or railroad trains run on Sunday. The first light-houses had fires of wood and coal kindled at the top of them. A gold coin depreciates 5 per cent. of value in sixteen years of constant use. The normal temperature of man is 98½ degrees Fahrenheit; that of fish 77 degrees. A man breathes about eighteen pints of air a minute, or upwards of seven hogsheads a day.

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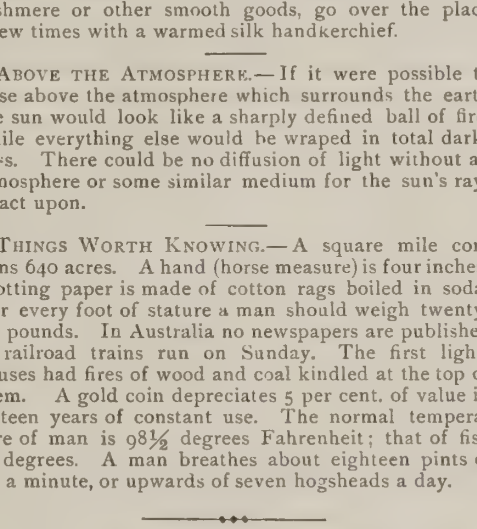
A NEW HELP TO BUSINESS.

AN INGENIOUS AND PRACTICAL DEVICE.

A workman may be ever so skilful, yet he cannot work without tools, neither can any business be successfully done unless it is attended to systematically.



THE SHAW TIME STAMP.

As an ounce of prevention is confessedly worth a pound of cure, so in business the prevention of errors, neglect, and needless delay will save many dollars and much annoyance. One of the best preventives of error and neglect is some system by which we can fix the exact moment of time when every transaction takes place—and, if this can be accomplished by a method which puts it beyond human power to change the record, we have progressed far towards the point where we can feel an assurance that everything that we can do to secure a perfect working of our business machinery has been done. In every place where any business is to be transacted it should be within the power of the proprietor or manager to acquaint himself with an accurate history of every transaction that has taken place during business hours; and when the means for doing this are provided, there is no further need of any derangement or jarring in the smooth running of the business machine. If every banker, merchant, broker, lawyer, physician, hotel keeper, club, factory, railroad, telegraph or other office could tell just at what minute of the day every transaction took place, there would never be any need of disappointment, owing to the neglect or misrepresentation of any one. If every paper passing through or into the hands of every person in the place were stamped with the date, hour, and minute, and the nature of the transaction, and if the exactness of this stamp were beyond the control of the person stamping, there never could be any question as to the exact stage of each transaction when any irregularity occurred. In such a case one employe could not put the blame of any fault upon another, and any occurring delays could be traced to their source. In all branches of business disputes arise as to the exact time of day of certain transactions, such as mailing or receiving letters, sending or receiving telegrams, serving legal papers, signing receipts, delivering or receiving goods, time of day documents go into effect, the time of workmen in mills or workshops, shipping goods and numerous other questions relative to time—all such disputes can at once be settled, and a correct record of the time of every transaction kept, by an instrument that would accurately and reliably perform such service. We have, we think, clearly shown the advantages, and some of the favorable features of such a system, and now it remains only to assure our readers that such an instrument is made, and will do the work we have described: it is called the SHAW TIME STAMP. Briefly described, it consists of an ordinary clock, which is connected with a movable band containing the twenty-four hours of the day divided into six equal parts of ten minntes each. This band moves with the clock-work, so that when the clock is running, the band, if an impression is taken, will, by means of a lever, impress upon any paper held under it the day, month, year, hour and fraction of about $\frac{1}{12}$ of an hour when such stamping took place. By means of a locked guard, interference with the time imprint can be prevented. Being a perfect time-keeper it is accurate, automatic and absolutely instantaneous in its movements, performing its work noiselessly, and is self-inking. The accompanying illustration will show at a glance what the instrument looks like. It is 8½ inches high, the base measures 4½ x 6½ inches, and it weighs 6½ lbs. The Shaw Time Stamp is a beautiful desk ornament, finished in nickel and black enamel. As it sets on the desk the time is always before you, it is substantial and compact, so simple to operate that no special directions are required. The following will give an idea of the impression made by this stamp:

THE ANALYST PUBL'G CO.
19 PARK PLACE, N. Y.

APRIL 1 1892

AM M PM
11 12 1
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RECEIVED

In the above fac-simile of the impression the date, hour and last line are changeable, the latter at the will of the person using the stamp, the hour automatically, and the date by the turn of a screw. The time band travels from right to left, and the graduations are ten minutes apart; the time indicated in this impression is 12 M It will thus be seen that this stamp, by one movement of the lever, will print the year, month, day, hour and minute, the name of the firm and the transaction, such as answered, received, mailed, paid, passed, etc. The following is a list of some of the words which may be used. Six of these can be put on the word cylinder, and may be used at will: Accepted. Acknowledged. Corrected. Credited. Decided. Deposited. Declined Passed. Posted. Presented. Protested. Purchased. Stopped. Sworn. Given Out. Granted. Guaranteed. Received. Received Payment. Recorded. Redeemed, or any other words of same length. This stamp, which is guaranteed to be accurate and in perfect working order, is shipped anywhere, prepaid, for $25. The Shaw Time Stamp is well made, absolutely accurate, can be managed by any person and will last a life time. The inventer of this stamp has had a practical experience of twenty years in the watch and clock business, which has been of great value in the construction of this stamp which is built on an entirely new principle. The printing is done by pulling a lever forward, which operation is noiseless, quick in action, self-inking and the clock is absolutely free from jar. During the past twenty years many unsuccessful attempts have been made to make a practical time stamp, all have been constructed on very much the same principle, and in every instance the printing portion of the stamp has been geared directly into the clock mechanism and the printing operation was by a blow, hence the failure. For more than twenty years inventors have been trying to produce a Time Stamp that will automatically and instantly record the year, month, day, hour and minute it was used. The demand and uses for a reliable article of this nature is very great, as by its use all business transactions can be instantly traced at a specified time to the proper responsible party through whose hands they have passed, and errors and omissions located where they properly belong; for example, receipts and payment of money, receipt, shipment, or delivery of goods, receipt and answering correspondence and telegrams, time of employees in workshops and factories, cashiers in shops and stores, distribution of goods or orders to different departments of large dry goods or other establishments, express companies, railroad offices, banks, insurance offices, hotels, billiard rooms, drug stores, physicians and lawyers offices, brokers, grocers and hundreds of other places in which the Time Stamp will many times save its cost. The necessary feature of a good Time Stamp must embody accuracy, and durability combined with a simplicity in construction and operation that will enable any one to utilize it without special instruction pertaining to winding and setting the time movements. As it is absolutely necessary to use clock movements in a Time Stamp, it is equally essential that the operation of the Stamp should be by lever instead of a blow, as the constant jarring of a blow will surely disarrange any clock movement and thereby destroy its usefulness. The Shaw Time Stamp is an entire departure from the beaten track heretofore pursued by inventors, who have vainly endeavored to produce a practical machine, and it combines all the desirable features and no faults, in fact, so remarkable is its conception and so beautiful and complete its operation, as to elicit special comment from the Examiner in Chief of Patents at Washington who says: "Applicant has for the first time employed a printing band with a Time Stamp, and so constructed and arranged the parts as to give substantially a new machine, that at once commends itself to the judgment of all, as it does that of the Examiner, and is distinctive and possesses the quality above mentioned, and is more compact, simple and cheaper of construction and better adapted to the ends aimed and required, than any of the old type wheel character." The Shaw Time Stamp is covered by three patents, numbered respectively, 412,902—421,623—447,912. There is but one other Time Stamp of importance on the market. It is a delicately constructed instrument, operated by a blow, which naturally has the effect of constantly disarranging the clock movement. The high cost of manufacturing this stamp practically prohibits its sale at a price that would return a profit—hence they are not offered for sale, but rented at fifteen dollars ($15.00) per year, the payment of each year's rental being demanded in advance. They cannot be wound and set except by an expert, and men are employed for that purpose. Notwithstanding all these disadvantages a great many of these stamps are in use, which clearly demonstrates the demand for an article of this nature, and the field existing for the Shaw Time Stamp, which possesses none of the defects mentioned, accomplishes its work in a most satisfactory manner, and can be sold outright to the consumer at a price but little more than the *rental for one year* of the other stamp. The Shaw Time Stamp is the only face printing Time Stamp made—that is to say, the paper or document to be stamped is inserted face up, so that it is easily determined where to place the impression. In using any other Time Stamp the paper must be inserted back up, and as the printing is made on the under side, great difficulty is experienced in locating the impression at the desired place. The retail price of the Shaw Time Stamp will be rigidly maintained at $25.00 each; and inasmuch as there is nothing on the market that can compete with it, either in price or convenience and quality of its work, there is no reason why the Shaw Stamp should practically have any competition whatever. Circulars giving further information may be had on application. The manufacturers want agents in unoccupied territory to whom liberal commissions will be paid. The address is: THE TIME STAMP CO., 35 Warren Street, New York.

BUFFALO LITHIA SPRINGS.–HOT SPRINGS.

TWIN REMEDIES IN

GOUT, RHEUMATIC GOUT, and RHEUMATISM.

WHAT THE HOT SPRINGS PHYSICIANS SAY.

Dr. Algernon S. Garnet, Surgeon (retired), U. S. Navy, Resident Physician, Hot Springs, Ark.:

"My experience in the use of BUFFALO LITHIA WATER is limited to the treatment of **Gout, Rheumatism**, and that hybrid disease '**Rheumatic Gout**' (so called), which is in contradistinction to the **Rheumatoid Arthritis of Garrod.**

"I have had *excellent results* from this Water in these affections, *both in my own person and in the treatment of patients for whom I have prescribed it.* Of course, the remedial agent is its contained **Alkalies** and their solvent properties.

"Hence it is a **prophylactic** *as well as a* **remedy** in **Nephritic Colic** *and forming* **Calculi** *when due to a redundancy of* **Lithic Acid.**"

The Late Dr. Wm. F. Carrington, Resident Physician, Hot Sp'gs, Ark., Surgeon (retired), U. S. Navy, Surgeon Conf. States Navy:

"BUFFALO LITHIA WATER, Spring No. 2. has signally demonstrated its remedial power in **Gout, Rheumatic Gout, Rheumatism, Uric Acid, Gravel,** and other maladies dependent upon the **Uric Acid Diathesis.**

"It not only eliminates from the blood the deleterious agent before it crystallizes, but **dissolves** *it in the form of* **Calculi**, *at least to a size that renders its passage along the ureters and urethra comparatively easy.*"

Dr. T. B. Buchanan, Resident Physician, Hot Springs, Ark.:

"*Send me five cases* BUFFALO LITHIA WATER, Spring No. 2. I have made use of this **Water** for **Gout** *in my own person and prescribed it for patients similarly suffering, with the most decided beneficial results.* I take pleasure *in advising* **gouty** *patients to these Springs.*"

Dr. G. W. Lawrence, Resident Physician, Hot Springs, Ark.:

"I prescribe BUFFALO LITHIA WATER with great confidence in all diseases of **Uric Acid Diathesis.** When travelling, it is my habit to use this Water as a guarantee for getting a pure water."

Dr. L. S. Ordway, Resident Physician, Hot Springs, Ark.:

"I have used BUFFALO LITHIA WATER, Spring No. 2, very extensively and successfully in my practice, in cases of *Rheumatism of the Arthritic* form, especially when complicated with weak, inactive *Kidneys, with inclination to Bright's Disease.* I have also found it an efficient remedy in *Albuminuria of pregnancy.*"

Dr. John A. Blaydes, Pres. HOT SPRINGS MEDICAL AND SURGICAL INSTITUTE, ARKANSAS. *Dr. R. O. Blaydes, Sec'y.*

THE STATEMENT OF DR. BLAYDES.

"We have made use of BUFFALO LITHIA WATER with patients of this institution in many obstinate cases of Gout, Rheumatic Gout, and Rheumatism, with uniformly excellent results, and in diseases generally of Uric Acid Diathesis regard it as an invaluable remedy. Its action in this class of cases indicates certainly the possession of some extraordinary property."

WATER IN CASES OF ONE DOZEN HALF-GALLON BOTTLES, $5.00. F. O. B. Here.

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THOMAS F. GOODE, - Buffalo Lithia Springs, Va.

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IS AMMONIA IN FOOD HEALTHY?

An exchange sent the following question to nearly every doctor in the United States, and comments on the answers:

Do you consider advisable the habitual use of food in any degree qualified by ammonia?

The answers—of course practically unanimous in the negative—at once began to pour in, and they are pouring in still. We undertook, by implication, to print them; but they are rising into the thousands, and full of varied and important testimonies from medical experience, so that we can print in this number but a moiety of the mass of information, with the decisions in brief of the host of professional correspondents who have so generously favored us, contained, as far as possible, in eight supplemental pages of this number, and to be continued in subsequent issues, as they continue to arrive. "The more the merrier," and we hope that those who receive this number and have not already answered will add their testimony to the great volume of the same contributed by others, so that the potent voice of the profession may be uttered, as we began by suggesting, loud enough to be heard from shore to shore of our great country.

◆ ◆ ◆

FLOUR FOR RUSSIA.—The American steamer Indiana lately sailed from Philadelphia with about 4,000 tons of grain and flour, the generous gift of the citizens of that noble town to the suffering people in Russia. The railroads transported the cargo free, and all who dealt with it, from truckmen and stevedores down to insurance companies, rendered free service. This ship was soon followed by the steamer Missouri, from New York, carrying about 3,000 tons more of meal and flour to the famine-stricken Russians, the generous controbutions of Western millers and farmers. The use of the steamer was also given, free of charge, by the Atlantic Transport Line. The total contributions to the Russians, so far, reach the sum of about half a million dollars.

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Horsford's Acid Phosphate.

A most wonderful remedy, of the highest value in mental and nervous exhaustion.

Overworked men and women, the nervous, weak and debilitated, will find in the Acid Phosphate a most agreeable, grateful and harmless stimulant, giving renewed strength and vigor to the entire system.

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Descriptive pamphlet free.

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Imitations.

CAUTION:—Be sure the word "Horsford's" is on the label. All others are spurious. Never sold in bulk.

BUSINESS NOTES.

SOME CHILDREN OF ADAM.

Worthington & Co., 747 Broadway, New York, announces for immediate publication No. 12 in their Rose Library, by R. M. Manley. A well-developed story, easily winning and retaining the reader's attention to the end. It is a vital contribution to the social study of New York society, for it presents a picture of American life that is most captivating to the thoughtful reader. There is such an atmosphere of the reality over the uncommon happenings of the novel, the narrative shows such careful study and shrewd observation of metropolitan life, that those who notice the types, distinct and interesting in their personality, will at once recognize the veracity of the representation. For this reason it will produce a profound impression wherever New York influence is predominant. Thousands, however, who wish to read the book with the expectation to be entertained only, will be fascinated by the magnetism of the story, the charm of its language, its intricate plot, its telling incidents, its strange coincidences, and its vigorous and at times thrilling actions, revealing the inner life, pleasures, intellectual pursuits, as well as the frivolities of the wealthier classes of New York. Price, cloth (illustrated), $1.00; paper, 50 cents.

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HORSFORD'S ACID PHOSPHATE,

The best tonic known, furnishing sustenance to both brain and body. Dr. J. J. McWilliams, Denison, Ia., says: "I have used it largely in nervousness and dyspepsia, and I consider that it stands unrivalled as a remedy in cases of this kind. I have also used it in cases of sleeplessness, with very gratifying results."

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LUCAS COUNTY, } *ss.*

FRANK J. CHENEY makes oath that he is the senior partner of the firm of F. J. CHENEY & Co., doing business in the City of Toledo, County and State aforesaids and that said firm will pay the sum of ONE HUNDRED DOLLARS for each and every case of Catarrh that cannot be cured by the use of HALL'S CATARRH CURE. FRANK J. CHENEY.

Sworn to and before me and subscribed in my presence this 6th day of December, A. D. 1886.

A. W. GLEASON,
[SEAL.] *Notary Public.*

Hall's Catarrh Cure is taken internally and act, directly on the blood and mucous surfaces of the system. Send for testimonials, free.

F. J. CHENEY & CO., Toledo, O.

☞ Sold by Druggists, 75c.

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THE SMALLEST WIRE.—The smallest wire in the world is made at Providence. The smallest size yet made has a diameter of .002 of an inch, and of this wire it takes sixteen miles in length to weigh a pound.

OLD WHALE.—A whale recently captured in arctic waters was found to have imbedded in its side a harpoon that belonged to a whaling vessel that had been put of service nearly half a century.

POSTAGE STAMPS.—Old postage stamps are highly prized in China, and a hundred cancelled stamps will buy a baby. Accordingly, it is said, the Roman Catholics are collecting the old stamps and purchasing the infants, whom they bring up to Christianity.

KEEP YOUR MOUTH SHUT.—Many disease germs enter through an open mouth, The mouth was not made for breathing, but for eating and speaking. The nose was made for breathing, and the air, passing through the long and moist nasal passages, is purified, and leaves behind dust, disease germs, and various impurities, while the air is warmed and tempered for the lungs. But when the mouth is left open, dust, dirt, and disease rush down into the lungs, and, fastening there, develop and destroy the whole system.—*The Christian.*

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One rounded teaspoonful of Cleveland's Baking Powder does more and better work than a heaping teaspoonful of any other.
A large saving on a year's bakings.

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A pure cream of tartar powder.

Used in the U. S. Army and by teachers of Cookery.

Cleveland's is the standard, it never varies, it does the most work, the best work and is perfectly wholesome.

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The best and most economical "Stock" for Soups, Etc.

One pound equals forty-five pounds of prime lean Beef.

Send to us for our book of receipts, showing use of **ARMOUR'S EXTRACT** in Soups and Sauces.

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Brewed & Bottled
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Great English Remedy for GOUT, RHEUMATISM and KIDNEY COMPLAINTS.

SURE, PROMPT and EFFECTIVE.

Large Box, 34; Small, 14 Pills.

At all Druggists, and
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It will be of interest to those contemplating settling in the Northwest, to know that the choicest farming and timber lands in Wisconsin are tributary to the Wisconsin Central Lines. Settlers on these lands have all the advantages of healthful climate, good market facilities, abundance of fuel and building material, pure and sparkling drinking water, and other important benefits which cannot be enjoyed on the prairies of the West. No droughts, no cyclones, no grasshopper plague and no fever and ague. Now is the time to select choice lands at low prices. Wisconsin is considered one of the most prosperous States in the union. Located directly on the Wisconsin Central Lines in this State are the thriving cities of Burlington, Waukesha, Fond du Lac, Oshkosh, Neenah, Menasha, Waupaca, Stevens Point, Marshfield, Chippewa Falls, Eau Claire, New Richmond and Ashland. For tickets, time tables, maps and full information, apply to G. R. Fitch, D. P. A., Wis. Central, New York, or to Jas. C. Pond, General Passenger and Ticket Agent, Chicago, Ill.

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It commends itself to the Consumer as a pure, wholesome and delicate Beer; can be safely used by Invalids.

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Instantaneous Electric Lighter.

PRICE, $5.00.

FOR PARLOR, DINING ROOM OR CHAMBER.

OFFICE, STORE, CIGAR SHOP OR SALOON.

Electricity Generated by Chemical Action. A Handsome Ornament for Table, Mantel or Counter.

THIS ILLUSTRATION represents our ELECTRIC LIGHTER, and is one-half its actual size. It is complete in itself—requires no extra Power Wires or Connections. The current of Electricity is generated by Chemical Action. It occupies the space of but SIX SQUARE INCHES.

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The material to charge the Battery can be obtained at any drug store at a cost of Ten Cents, and will run 30 to 60 days.

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We have taken especial care in the manufacture of these Electric Lighting Batteries; they are handsomely constructed in nickel plate and highly ornamental, and will take a prominent place among the bric-a-brac of Reception Rooms, Parlors, etc.

☞ Full directions and one charge for the Battery accompany each apparatus.

All orders for less than $20.00 must be accompanied by Postal Express Money Order or by Draft on New York.

Goods shipped C. O. D. on receipt of Twenty per cent. (Remittances with order save return charges.)

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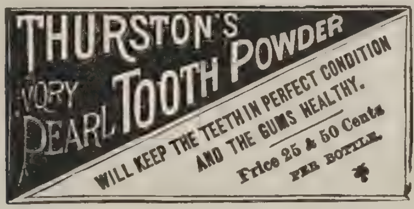
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WILL KEEP THE TEETH IN PERFECT CONDITION AND THE GUMS HEALTHY.
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Artistic Metal Workers.
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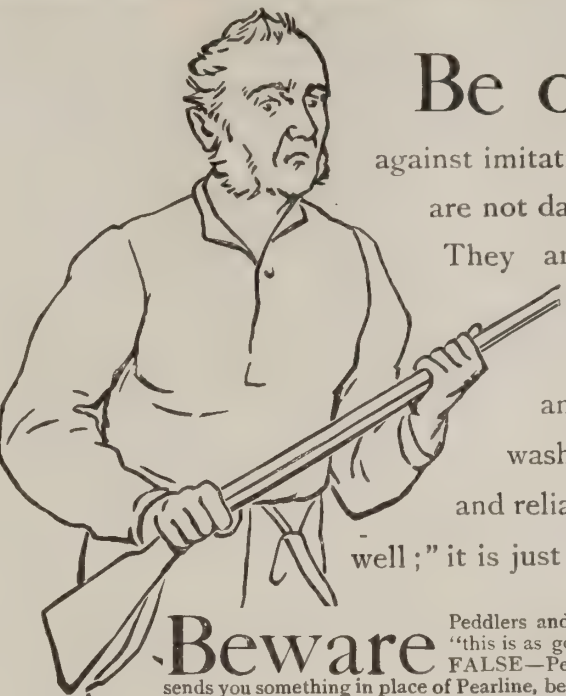

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Magee's Emulsion

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A Reliable Remedy for all Pulmonary Diseases, Coughs, Colds, Bronchitis, Dyspepsia, Scrofula, and General Debility; it is easy to take, does not produce Nausea, and is easily assimilated.

Ask your Druggist for it, and take no other.

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Unlike the Dutch Process
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Breakfast Cocoa,
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It has *more than three times the strength* of Cocoa mixed with Starch, Arrowroot or Sugar, and is far more economical, *costing less than one cent a cup.* It is delicious, nourishing, and EASILY DIGESTED.

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SEND US 10 CENTS, to pay postage, and the names and addresses of five lady friends that you think would like sample copies of "**The Household Pilot,**" and we will mail it to you one year **FREE** of cost. A large 8 page, 40 column, Illustrated Household and Farm Journal, one of the best in existence. Now in its 13th year. Devoted to short and interesting stories, Fancy work, Fashions, Horticultural, Agricultural and everything of interest to the whole family. Large CASH PRIZES given away. Address,

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I have a medical specialty for ladies' use, which is one of the best selling articles in the country. You can make a good income handling it, and at the same time be doing your sex a great benefit. Write me at once for full information and exclusive territory. If you wish a sample sent enclose 12 cents postage. Dr. H. H. Jackson, 103 State Street, Chicago.

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In looking about us to see how we can best serve our subscribers we have been reminded of an opportunity by the frequent receipt of letters asking us to purchase different articles for our friends. When we have been able to comply with such requests we have been gratified to find that our purchases have been satisfactory, and at remarkably low prices, and we have therefore concluded to establish an

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The only conditions of membership in this club is that of being a subscriber to the AMERICAN ANALYST.

Located in New York City, and able to buy large quantities at a time, manufacturers will be ready to sell us goods of known quality at the lowest cash prices, and we will thus be enabled to save for our members all middlemen's profits.

We do this extra work at extra labor and expense in order to add to the value of a subscription to the AMERICAN ANALYST, and thus largely increase our subscription list. We withdraw all premium offers, and substitute this AMERICAN ANALYST CLUB with its innumerable advantages.

From time to time, as arrangements can be made, the number of articles procurable through the club will be largely increased. Until we shall have a larger list to offer we shall be glad to give information as to cost of any specified article, and procure it when ordered, and cash is remitted. All letters of enquiry must enclose stamp for reply. Samples cannot be sent.

THE AMERICAN ANALYST,
19 Park Place, New York.

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A LITTLE USEFUL INFORMATION.

Every one wants a watch, and there is no good reason why this want should not be supplied. By making large purchases for cash, the ANALYST PUBLISHING COMPANY is now prepared to furnish its subscribers with almost any kind of watch made at less than the lowest wholesale price. All these watches, even the cheapest, have the watch safety pinion, tempered hair-spring, compensation balance, and are stem wind and and stem set—all modern improvements. All named movements and all adjusted movements are full jeweled.

CONDITIONS.

Now a word as to the exact conditions under which the AMERICAN ANALYST will procure these watches for its subscribers. The AMERICAN ANALYST has no watches for sale. It has no lists or catalogues. It buys for subscribers as they order—merely to oblige them. It cannot buy cases with special patterns except at the regular prices. It sends nothing C. O. D. or on approval, and does not care to do this work except as a favor to subscribers, who can appreciate its value.

The AMERICAN ANALYST insures the safe delivery of each watch in perfect order. If not delivered in perfect order it must be promptly returned, and the insurance company will pay to us all expenses incurred. But it must be returned within thir y days. Any injury can be detected in that time, and after that time the buyer must be responsible for his oversight. A watch delivered in perfect order must be kept in order by the wearer. The AMERICAN ANALYST cannot guarantee that the wearer will do this, and any injury must be through his negligence and at his expense.

If a watch or case not named in the AMERICAN ANALYST is desired send a description, and the cost will be given.

Subscribers must be specific in stating what they want, and remit cash with order.

Address all orders and remittances to

THE ANALYST PUBLISHING COMPANY,
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QUALITY AND COST OF THESE WATCHES.

MEN'S AND BOYS' WATCHES.

The following are the prices for full-sized open-faced watches in silverine open-faced cases, screw back and screw bezel (front):

7 jewelled	$5 60
15 jewelled, nickel	10 30
Adjusted, nickel	12 65

Add $7 for Montauk and $10 for Monarch open-faced cases.

The subscriber may select his watch from either the Elgin or the Waltham factory.

The "named" movements of the American Waltham factory cost in open-faced silverine cases as follows:

P. S. Bartlett, adjusted	$12 65
Appleton, Tracy & Co., adjusted, gilt.	17 35
Appleton, Tracy & Co., adjusted, nickel	19 70
Crescent Street	24 40

Add $7 for Montauk case and $10 for Monarch open-faced cases.

The Elgin "named" movements in the open-faced silverine cases cost:

G. M. Wheeler, nickel	$10 30
H. H. Taylor, nickel, adjusted	15 00
B. W. Raymond, gilt, adjusted	17 35
B. W. Raymond, nickel, adjusted	19 70

Add $7 for Montauk and $9 for Monarch open-faced cases.

The foregoing will be furnished in engraved or engine turned gold filled HUNTING CASES at $10.50 *extra for Montauks;* $15 *extra for Monarchs.*

Two-ounce, open-face, solid gold, 14 carat U. S. assay cases, cost $30; three-ounce hunting cases cost $42, and 2½ ounce cases, either open or hunting, cost $36.

MEN'S WATCHES—SMALL SIZE.

The American Waltham Company alone make "named" movements 16 size. These are as follows, in Monarch, Crescent or Dueber hunting-case, full engraved:

American Watch Co., 24-jewelled	$100 00
American Watch Co., 16-jewelled	65 00
Riverside, nickel	35 00
Riverside, gilt	27 50
Royal, gilt	23 50

This is the exact Trust price to the jeweller. Open-faced cases average $3 less.

The Elgin factory makes the following movements in the 16 size, which cost in open-face silverine case as follows:

Seven jewels	$6 75
Thirteen jewels, gilt	10 75
Adjusted, gilt	15 75
Adjusted, nickel	17 75

Any 16 sized movement will be furnished in open-faced gold-filled engraved Montauks for $7 extra; Monarchs $10. In hunting cases, Montauks $10 and Monarchs $15.

SOME SPECIAL BARGAINS.

United States Walthams in the engraved Montauk hunting cases. $12.25 by registered and insured mail.

Boys' seven-jewelled, medium-sized (16) Elgin movements, cased in silverine hunting cases, for $7.60 each.

The cheapest fully adjusted man's watch is the celebrated Railway, in Moutauk open-faced, gold filled cases at $23.65 net. The regular price of the movement alone is $25.

The John C. Dueber, in hunting case full engraved, for $25. The factory price is $27.

LADIES' WATCHES.

These are in three sizes, but the 6-size is the better time-keeper, and the favorite size for women. All are hunting-case, stem wind, pendant stem set, safety pinion and tempered hair spring.

The Elgin factory makes the following in both 6 and 0 sizes at the prices annexed for solid 14 carat gold engraved cases:

7 jewels, gilt	$25.00
11 jewels, gilt	27.75
11 jewels, nickel	27.75
13 jewels, nickel	30.00
15 jewels, nickel	33.50
17 jewels, adjusted	43.50

In Montauk cases, $10 less; in Monarch cases, $8 less.

In the 6 size, if the subscriber will leave the choice to us whether it shall be an Elgin or Waltham movement, it is nearly always possible to purchase one or the other, so that the cost in a pretty Montauk case will be but $13 75, and in a Monarch engraved, $15.75. But the subscriber who selects for herself must pay the prices before named.

THE ORIGINAL AND GENUINE
(WORCESTERSHIRE SAUCE).

LEA & PERRINS' SAUCE

In consequence of Imitations calculated to deceive, we call attention to the fact that each bottle of the Original and Genuine WORCESTERSHIRE SAUCE, bears our signature thus—

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For sale in Bottles only (not in bulk), by Dealers in Sauces throughout the World.
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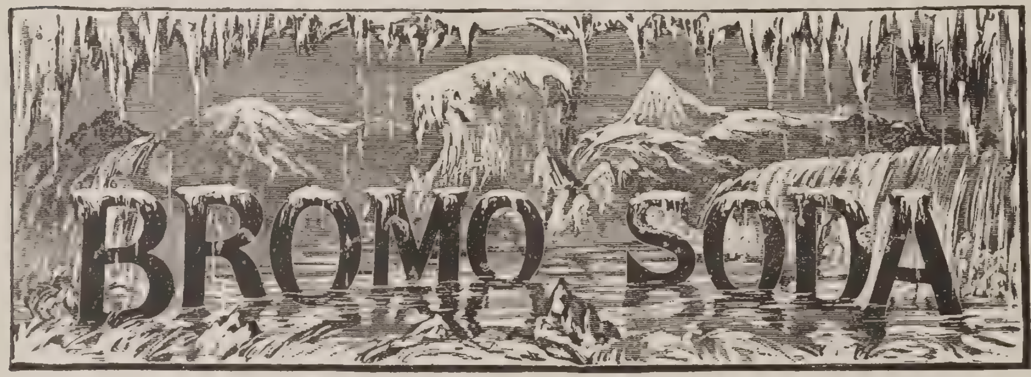

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Always ask your Grocer for these goods.

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CONTENTS.

Page
About Thread Making ... 164
Artificial Human Milk ... 159
Danger of Celluloids ... 164
Editorial ... 157
Change of Dress—Pure Food—Is it Fair?—Adulteration Laws—Editorial Puffs—Baking Powders.
Electricity for Cooking ... 159
Gold Leaf ... 164
High Temperatures of the Body ... 160
How Matches Are Made ... 169
Medical Hints ... 159
Mental Power and Oxygen ... 160
Mineral Wool ... 165
Potatoes ... 159
Soap Plants ... 160
Teetotalism Safe ... 164

CHANGE OF DRESS.

It is the same paper, revised, improved and furnished with a new cover. For reasons already explained to our subscribers, we have concluded to consolidate the reading matter formerly given in four numbers a month into two and add thereto from time to time, so that there will be more reading matter in a year than before. We have made arrangements with a number of special writers to furnish interesting and valuable articles for our columns, and hope thus to continue enjoying the favorable consideration of our patrons.

PURE FOOD.

This is more important than anything else, and will hereafter receive more attention than ever before. We have re-arranged our laboratory and employed additional help and shall go out in the open market to buy such brands of food products as are in most general use, have them carefully analyzed, and if any of them are found wanting in any essential particular or differing from what is claimed for them on the labels, we will not hesitate to publish it. Nothing of the kind will be advertised in our columns, so that we can boldly state that anything we advertise we know to be exactly as represented. This high standard we will maintain.

IS IT FAIR?

From a late report by the Massachusetts State Board of Health, we learn that the inspectors in that State have searched the State over and found a lot of spices and mustard adulterated, and, strange to say, every one of the adulterated articles was made by manufacturers from outside the State. Now, as we do not believe that all the dishonest manufacturers are non-residents or that all the manufacturers in Massachusetts are making only strictly pure goods, we are inevitably forced to the conclusion that the Massachusetts inspectors confine their examination of spices and mustards to those bearing labels of manufacturers from other States. If this is a correct assumption it is a very nice way of protecting home industries but one which will work both ways. We know from actual analyses made that some of the spices and mustards sold by Massachusetts manufacturers in the West are vile products of adulteration in its worst and most unscrupulous form. We also know that some of the goods of New York manufacturers reported as adulterated by the Massachusetts officials are only technically so and are on the whole far superior to the same grade of goods made by the Massachusetts spice and mustard mills. These spice millers no doubt are gleefully rubbing their hands over the nice way in which they keep their trade at home. Be it so. There are few States that have such stringent anti-adulteration laws as Massachusetts, but they all have a public press which can arouse popular interest in a question so vital to their readers. We are now buying in the open market samples of spices and mustards made by different manufacturers in Massachusetts and other States, and having them analyzed by three different chemists. Their report when made we shall publish, and then we will see which State furnishes the purest goods. While on this subject we will add that what constitutes adulteration may be an open question, which can hardly be decided by law, but we assert, and it is susceptible of demonstration, that if any manufacturer will put up only the best goods in the cleanest way and convince the consumer that his label appears only on such goods, he will have no trouble in selling them at a fair profit. This is best illustrated in ground pepper. If a spice man grinds pepper just as he buys it, without any addition to it, he may truthfully claim that he has not adulterated it, but if his competitor will screen his pepper, take all twigs, stones, sand and dirt out of it and then label it as pure pepper he will command a higher price and more extensive sale for his brand, which will quickly become known and valuable. The public is rapidly learning to buy by brands.

ADULTERATION LAWS.

A telegraphic despatch from Albany in the New York *Sun*, dated April 6, says:

Merchants and manufacturers in New York have become unnecessarily alarmed over several bills to compel the labelling of all packages containing food or medicinal preparations, with an analysis of the contents of the package. These bills, in different shapes, are annually introduced by the dozen. It is rare for any of them to pass, and it is often doubtful whether the member who introduced them did it in good faith. Most of these bills belong to the class of what is known as "strikes," which is a legislative term, meaning that a bill is introduced with a view to making it an object to some one or some corporation to induce the man who offered it to withdraw it or to assist in killing it.

A great deal of apprehension was caused among New York business men by a report that a bill introduced by Mr. Cahill of Brooklyn, on March 18, had passed the Assembly and gone through the Senate. This bill provides for the labelling of packages of various kinds with a description of the compounds of which the package is composed. The fears of New York business men about this bill are without foundation. The bill has not only not passed the Assembly, but it has never been reported from the judiciary committee, to which it was referred, and nothing has been done about it in the proceedings of the Assembly since its introduction. It is not at all likely that the Cahill bill will be reported and, if it is reported, it is not likely that it will pass. There are hundreds of bills ahead of it on the calendar, and it would have to be jumped out of its order to come to a vote. A canvass of the Assemblymen shows that many of them are strongly opposed to it and the bill, even should it be reported, could not be advanced without special favor in the committee on rules, which is most improbable. Several other bills of the same nature have been introduced. Among them are these:

By Everett Brown—Making it a misdemeanor to use any substitute for barley or barley malt or pure extract of barley in the manufacture of ale or beer. [This bill was ordered to a second reading on March 9.]

By Everett Brown—Making it a misdemeanor and punishable by a fine of from $250 to $500 to put up fruit or vegetables in cans if they shall contain any artificial coloring, bleaching, or any substitute for pure refined cane or bleached sugar of any kind. [This bill was ordered to a third reading on March 4, and afterward laid aside by its introducer.]

By Dominick Mullaney—Requiring all bottles or boxes in which cottonseed oil is a component part or ingredient of lard or oil staples to be labelled to that effect. [This bill failed to pass.]

By T. D. Sullivan—Requiring that every package or vessel holding baking powder and containing ammonia or other injurious ingredient, shall have a label in plain type stating the different ingredients, whether they are presumably injurious or otherwise. [This bill was ordered to a second reading on Feb. 25.]

Mr. Kelly introduced a bill somewhat similar to the Sullivan baking-powder bill. This bill is still in the committee on public health.

These are only a few of the bills in regard to labelling and adulterations. No one pays much attention to them, and most of them are regarded in a semi-humorous fashion. There is no occasion for anybody to be alarmed by them, as so far none of them has passed either House.

Speaking of this bill editorially the same paper says:

The bill entitled "An Act to require a printed statement of or ingredients of packages, cans, bottles, or other receptacles containing materials for alimentary or medicinal purposes," which has passed the Assembly at Albany without attracting adequate attention, has now been printed. It is not creditable to the business men in the Assembly that they should have allowed such a measure to escape their observation. Its far-reaching effects only need to be pointed out in a concrete manner to secure its instant and everlasting extinction.

Have our sapient Assemblymen calmly considered how many articles in common household use they run the risk of banishing from the State of New York. Self-raising flour is a very modern article; the old plan, still remembered, was to use your own yeast, or bi-carbonate of soda. Those who have boiled cocoa nibs for twelve hours fully appreciate the modern preparations of that article. Time was when bread soaked in milk and water was good enough food for infants; do the mothers of New York State propose to give up all the various prepared foods? Then there are the meat extracts and tinned soups; the artificially prepared mineral waters and the special preparations for summer drinks. By the way, how would a bottle of imported ginger ale look with its tiresome formula printed on its label?

Not less serious would the application of the proposed act be to all kinds of patent medicines and secret formulas used in making special preparations for medicinal use. It is hardly too much to say that cod-liver oil is the most valuable medicine discovered since the anæsthetic use of ether and chloroform became known. Alone it has stood the test of time even as a partial remedy for consumption. But the taste of cod-liver oil is exceedingly nauseous, and dozens of preparations, making it palatable, are in the market. Are we to forego the use of prepared cod-liver oil?

We are a nation of patent-medicine takers. A comparatively large proportion of the community believe in homœopathic remedies, always kept prepared in stock. Must every man who has a cold, a pain, an ache, or a torpid liver get an old-fashioned prescription before he can get relief? Moreover, many remedies act largely by appealing to the imagination. Must each man's peculiar nostrum be smuggled into the State at an enormous enhancement in price; or are drug stores to be turned into patent-medicine shebeens?

We say nothing of the millions upon millons of dollars invested in unobjectionable and perfectly lawful business which would be partly confiscated and partly driven to find a refuge outside the State. If the common users of common things cannot protect themselves, the capitalists will ultimately be helpless.

The American Analyst desires to call attention to the erroneous position taken by the *Sun.* We do not believe that the bill will pass, but can see no reason in any of the arguments advanced by our contemporary to change our opinion strongly favoring the salient parts of this bill. Any article intended for human food or medicine the manufacturer of which dare not publish what it is composed of, should not be allowed to be sold. If the goods are honestly made and sold for what they really are, the manufacturer should not be afraid to state of what they are composed. By so doing he would not give away any trade-secret, because no competitor could imitate his brand or trade on his reptation. Well made, pure goods can always be sold under their brand and will command their price at any time. This law would put a value on brands they have never had before. In the patent medicine trade, throwing a bright light on the ingredients would only tend to eliminate innumerable articles that at best are harmful and frequently very dangerous, and in this way would be a blessing. It is strange at this late day to read of opposition to a law which would give protection to the health and lives of the people. Of course the manufacturers of many sophisticated, poisonous or worthless articles would have to give up business; ammonia-laden baking powders, candy colored with arsenic, or filled with fusel oil, sardines made from menhaden and preserved in rancid oil could not be sold. but who will miss them? Such a law as this, unlike our oleomargarine laws, is not for the benefit of a few but a wholesome protection for all. By all means let us have it.

The following, quoted from the *Journalist* gives the editorial-room side of this question:

HONESTY AND ADVERTISERS.

The unanimity with which the newspapers have attacked the bill against food and medicine adulteration recently passed by the Assemby in Albany is instructive as evidencing the motive force which lies behind a large portion of editorial expression in the daily press. The big advertiser whistles and the editor dances. The bill in question is not a new idea; it is already a law in France, Germany, and other more scrupulous countries; it simply provides that the gentleman who concocts an eye-water or other medicament, which is guaranteed to cure all the ills which flesh is heir to, shall state on the package just the ingredients which go to make up his mysterious compound. It is not aimed at honest manufacturers, and it is patent to the smallest intelligence that it can do the honest manufacturer not the slightest harm. In fact, some manufacturers like the Cleveland Baking Powder Company, have voluntarily been doing for years just what the bill provides for. It is the only honest way of doing business. The purchaser has a right to know what he is paying out his money for, and, if everything is fair and above board, the manufacturer can have no valid objection to having this known. The manufacturers of Scotch oats essence, for example, would have probably objected strenuously to printing their formula on the bottles. The genius who advertised, for a time, the "tasteless quinine," a sure cure for malaria, and in this disguise sold plain sugar and corn starch at about seventy-five cents an ounce, would, very naturally, claim that such a bill would ruin his business; the man who sells an emulsion of cod-liver oil which consists largely of almond oil with a sufficient quantity of opium to quiet the consumptive's cough, feels that the bill is an outrage upon his personal liberties, which in his mind include the privilege of dosing his fellow man with what he pleases and calling the concoction by any name best calculated to lure the elusive dollar from the pocket of the victim. But while incalculable harm is done by these frauds the dishonesty which the bill in question would most readily reach is the wholesale adulteration of spices as practiced by several large manufacturers. Tons of ground cocoanut shells and almond shells are used in the manufacture of cinnamon, ginger, pepper and other spices, and the adulterated product is sold as pure spice. And this is the sort of dishonesty which the New York newspapers are trying to protect. Pickles and canned vegetables are colored green with copper and other poisonous dyes. Coffee is adulterated with chicory, cocoanut shells and burnt beans; "pure cider vinegar" is made from sawdust; "nerve tonics" are put up which consist largely of alcohol and opium, and so on through the list of swindling food products and so-called proprietary medicines and the newspapers are the first to bolster up the swindlers. The crack of the advertiser's whip rings in the ear of the publisher, the advertiser pipes and the editor dances in time to his music. "Simon says wiggle waggle," and editors and publishers wiggle waggle in meek obedience. It is not a pleasing condition of affairs to see the press of a great city array itself on the side of fraud and deliberate swindling, if not worse, bought by a few inches of advertising at cut rates. They need never expect any other return for their support, for the men in whose behalf they are fighting, do not known the meaning of the word gratitude. It is a fight of the advertiser against the reader, and the advertiser has the strongest pull. It is possible that the money of the manufacturers and the mistaken self-interest of the press may defeat the bill, but it is bound to come up again; the manufacturers of secretly compounded nostrums and of adulterated food products will have secured a little longer time in which to ply their nefarious trade. It is a measure which the people will, sooner or later, demand. If we have meat inspected to see that the butcher does not sell the flesh of diseased cattle, why not have a law to compel the grocer to sell pure food, and druggist to sell pure medicines. The grocer and druggist would welcome such a bill gladly. No one objects to it but the knavish manufacturer and his willing tool, the subsidized newspaper.

EDITORIAL PUFFS.

We take for our text two editorials from contemporaries which just express what we have to say on the subject:

TO OUR ADVERTISERS.

It is generally understood by medical publishers, whose journals have small circulation, that free license is to be given to advertisers of any compound, in reading notices, and extracts from other journals, of the *virtues* (?) of their specialty. We wish it to be distinctly understood that the *Pacific Record* will not, under any circumstances, endorse or recommend any article, not in accordance with the ethics of the profession—and whose formula is not known and approved—and more, the favor (?) of an eighth page "ad" is not entitled to more than *two* columns of free reading notices. The proprietor of this journal pays two dollars a column for composition, exclusive of paper, binding, mailing, commission, and wrappers, *verbu sapientia.* If your stuff is good, we know it, and one line *from us* in endorsement is worth fifty times what you pay, for we have the credit of being an *honest crank and a savant* (excuse our modesty) but to ask us to print extracts from other journals as if from ourselves, is too thin. Our readers won't believe it and it hurts the *Record.* Send us a truly good thing (sample) and if your "ad" is worth it, we will analyze it, for we are a chemist, and give it *two lines of endorsement* worth a whole page of fulsome flattery (lies). The *Record* wants "ads" but it is not a "trade journal" and is not a begging concern. It is above everything, HONEST, else this article had not been written.

TWO METHODS.

To a physician of Philadelphia, widely known and greatly honored, an enterprising firm of dealers in wine lately sent a most lavish and costly case of "samples" of their "medicinal" beverages. The enterprising firm was thanked, and politely informed that the present had been re-presented to ——— Hospital. Another physician writes an effusive and laudatory letter in praise of the wine as regards its prophylactic and curative properties in disease, and this letter will doubtless be poked under the nose of every one of us for years to come. In certifying to the superior excellence of one special preparation, it goes without saying that as a scientific man the physician has made impartial scientific analysis and tests of all competing preparations of the kind, and chemically, physiologically, and therapeutically is disinterestedly certain that the one he pronounces the best is really so. If he has not done so his certificate is a farce and he has unjustly discriminated against other preparations, possibly equally as good, the makers of which trust to the qualities of the preparation rather than to sly advertising dodges. But whatever the fact, either he has been foolish enough to give a valuable thing for nothing, or he has had value received for the puff.—*Medical News.*

We endorse every word these two editorial brethern say. If editorial notices are not truthful they are not reliable and the public quickly finds out what journals insert such unreliable reading notices, either as paid advertisements or gratuities.

BAKING POWDERS.

In several issues of the American Analyst we have discussed baking powder—the simple theory on which such agents are chosen, and the materials employed to reduced the theory to practice. The use of ammonia as a theoretically perfect agent for the purpose was mentioned, and several interesting stories told of how the ammonia question was being argued on the drainage-of-stables line and the complexion-destroying idea. The anti-ammonia manufacturers have now something a little more tangible to present in the shape of a paper read by Mr. Endemann at the Washington meeting of the American Chemical Society, but which was not brought to public notice until some time afterward. This paper enjoys a certain distinction not commonly gained by like papers—it is said to have been suppressed by the publication committee, but a copy having fallen by accident into the hands of a journalist, it was published by him and we reprinted it at the time. Dr. Endemann's researches appear to show that the volatility of ammonium carbonate—a quality that has theoretically rendered it a perfect agent for rendering dough porous—is abridged by a reaction with the gluten of the flour, a portion of the ammonia thus entering into the formation of a non-volatile compound. This, of course, brings us to face the possibilities that lie in ammonia as a disease-producing agent, and those who have no desire in the premises except arrival at the exact truth, will be glad to see an extended series of careful physiological experiments made to determine the question indicated.

As the case stands at present, it amounts just to this: If we use baking powder let us use the best and purest that is obtainable. It is an easy matter to settle this question. The baking powder which is composed of pure cream of tartar and bicarbonate of soda, when a cream of tartar baking powder is used, is undoubtedly the best. Now who manufactures such a powder? The answer to this is obvious. It is the company which honestly publishes on the label what their powder is made of. There are other baking powder companies who dare not do this. Such companies knowing the weakness of their position attempt to throw dust in people's eyes by brazen statements about the superiority of their own wares and the impurities contained in the products of their competitors, by publishing false quotations from official reports, and interpolated and unauthorized recommendations from well-known cooks, not daring to affix the dates. They tacitly admit their false position by gradually withdrawing the objectionable ammonia from their product. Such manufacturers cannot be trusted.

ELECTRICITY FOR COOKING.

HOW IT IS EMPLOYED.

Resistance coils of platinum or German silver wire have been used for experimental cooking. The currents used have been of constant direction, and the coils traversed by the currents must needs be in or in close proximity to the substance to be cooked. Further, the surface exposed by a coil taking up considerable room is small and the amount of heat radiated and conducted from the wire, if not nearly red hot, will not be large. Cooking by electricity has not come into use as yet; the use of alternating currents offers a solution to the problem. A large electro-magnet of great self-induction is constantly in circuit. The loss of current through this coil, as long as metal is not brought near it, is too small to be measured. It being desired to cook flapjacks, an iron spider is placed over the poles of the electro-magnet. The rapid reversals of current in the coil induce currents in the iron spider, which is thereby heated. For heating liquids a copper vessel is preferable, where it can be used, on account of its greater conductivity. The metal in which, or on which, the cooking is done need not touch the magnet. Indeed, a lessened heating effect is obtained by separating the dish from the electro-magnet.

Ceylon Tea.—When we read that the production of tea in Ceylon has risen from 100,000 pounds in 1875 to 68,000,000 pounds in 1891, and will shortly be 100,000,000 pounds per annum, it is time to put one's self on guard against this staple. For recent investigation has shown that the amount of tannin, which is the noxious element in tea, is from three times to five times as great in the Bengal and Ceylon leaf as in the Chinese. The attention of the medical profession in America is called to this fact.

Macaroni Cooked in Gravy.—Break a dozen sticks of macaroni into small pieces and wash them. Put them in a stew pan and pour over them about three cups of beef stock; put a lid on the pot and let cook slowly for half an hour, then mix together a tablespoonful of butter and one of flour and stir them into the macaroni; season with salt and pepper, boil up and serve.

POTATOES.

WHERE THEY ORIGINATED AND HOW LONG THEY HAVE BEEN KNOWN.

The potato was introduced into Europe from the Western hemisphere. History has it that Christopher Columbus was the first European who ever tasted a potato. It is doubtful if he ever enjoyed eating our favorite tuber. At all events, the vegetable that he ate at Cuba, in 1492 and brought home to Genoa, was a sweet potato. The first potato grown East of the Atlantic ocean was planted by Claudius, in the botanical gardens of Vienna, in 1588. As is well known, Sir Walter Raleigh found the potato in Virginia, and took specimens back to England. The original home of the popular tuber is Chili. It was brought North by the Spaniards. For many years the potato in England was looked upon as being poisonous and unwholesome. This, perhaps, is not to be wondered at, as it was commonly eaten raw, the method of cooking it not being known. Gradually its usefulness as a palatable vegetable became known. A committee of the royal society urged, in 1652, that all the fellows who possessed land should "plant potatoes and persuade their friends to do the same, in order to alleviate the distress that would accompany a scarcity of food." In 1738 the first field of potatoes was planted in the lowlands of Scotland. As soon as the people of Ireland knew how to cook the potato it became the one leading vegetable of the land. Its cheapness of cultivation, large yield and nutritive qualities, made it become immensely popular, and as it was the chief article of food, it ere long obtained its present common name—Irish potato. The Irish were the first to discover that whiskey could be made from it. Starch is made from it for the laundry and for the manufacture of farina. The dried pulp from which the starch has been extracted is used for making boxes. From the stem and leaves a narcotic is extracted In some places cakes and puddings are made from the potato flour.

MEDICAL HINTS.

ON TAKING FLUID WITH MEALS.

A great deal of misapprehension is often found to exist in the popular mind in regard to matters of eating and drinking. The cause of this to some extent is to be traced to old-time sayings which have come down to us in the form of a concentrated infusion of somebody's opinion upon a subject of which he or she was wofully ignorant. One of these misapprehensions to which we may refer is as to the injuriousness of taking fluid with meals. One frequently hears it laid down as a maxim that "it is bad to drink with your meals; it dilutes the gastric juice." By way of explanation we may remark that "it implies that the fluid taken is harmful." Whence this sagacious postulate originally came we cannot tell. It has quite the ring about it of an inconsequent deduction formed by a person whose presumption of knowledge was only exceeded by a lamentable ignorance of the subject. Medical men often find much difficulty in dealing with these museum specimens of antiquated science, for even educated persons are disposed to cling to the absurdities of their youth. Upon this matter Mr. Hutchinson remarks in the last number of his archives: "I observe with pleasure that the verdict of general experience and common sense has been confirmed by scientific experiment in the matter of taking fluid with meals." Dr. Tev. O. Stratievsky, of St. Petersburg, after elaborate trials, has found that fluids materially assist the assimilation of proteids, and announces the following conclusion, which it is to be hoped no further experiments will controvert: "On the whole, the widely spread custom of taking fluids during or just before one's meals proves to be rational and fully justified on strict scientific grounds. To take fluids with the meals is almost as important an adjunct to digestion as is the mastication of solid food preparatory to swallowing it." It is obvious, however, that there is a limit to the amount of fluid one can swallow with impunity—not to speak of comfort—just as much with meals as at other times. It would be dangerous to create a general impression that fluid is good with food irrespective of quantity. It is, moreover, a well-ascertained clinical fact that an excess of cumprandial fluid does retard digestion in certain people, and gives rise to discomfort in most. A little attention to one's sensation in such matters will far better fix the desirable limit than all the "data" in the world.—*Medical Press and Circular.*

ARTIFICIAL HUMAN MILK.

HOW IT CAN BE PREPARED.

Human milk differs materially in its composition from cow's milk, for which reason there have been numerous propositions and formulas offered for altering the proportions of the constituents of the latter so as to make it approach more nearly to woman's milk.

The average composition of human and of cow's milk is as follows:

	Human	Cow's
Casein	2.7	4.2
Butter	3.5	3.8
Milk Sugar	5.0	3.8
Salts	0.2	0.7
Water	88.6	87.5
	100.0	100.0

Mr. T. Maltby Clague, from whose paper this notice is taken, having occasion to prepare an artificial human milk, after some experiments adopted the method advocated by Soxhlet, with some modifications (see below). The original formula provides for bottles fitted with rubber corks, but in Mr. Clague's case the expense of rubber corks stood in the way of their use. On the other hand, ordinary corks presented many difficulties in the obtaining of a perfect hermetical sealing. Chief among these difficulties was the fact that cork compressed while hot and wet into the neck of the bottle did not retain its elasticity sufficiently to remain air-tight. It was found feasible to produce results which would remain good for a week or so; it was much more difficult to secure its keeping for longer periods. Samples have, however, been manipulated which remained sweet and good for over two years.

Several children were put upon this food as made in our laboratory, and the results were of a most satisfactory character, the testimony of parents and medical attendants being that children were able to retain or assimilate the food who could not retain or assimilate any other milk food, while the development of the children was steady and gratifying. The profit obtainable was not, however, sufficient to compensate for the trouble involved, and a simple recipe for its manufacture was given to several parents, who have been able, with the implements and intelligence contained in their kitchens, to produce satisfactory results. This was:

New Cow's Milk	3 pints
Cream	4 ounces
Milk Sugar	3¼ "
Water	2 pints

Dissolve the milk sugar in the water and mix all together. Put into bottles filled to shoulder only, place them on the tray of a fish kettle, surround with water, and place on the fire. Allow the water to boil for half an hour, so that the expansion of the milk may be fairly complete, then cork, and allow the boiling to continue for another half hour, when the operation is complete.

A sample of the kitchen-prepared article has been submitted to analysis, with the following results:

Casein	2.6
Butter	3.4
Milk Sugar	4 8
Ash	0.4
Water	88.1

A comparison of the digestibility of the three milks—that is, the artificial human, the natural supply and cow's milk—has also been attempted. A sample of each was submitted to the action of rennet. In the case of cow's milk the curd consisted of one large clot, while in the other two it was much broken up. To each a few minims of acid glycerin of pepsin were added and they were placed in a water bath at 140 deg. F. for half an hour. Solution was almost complete in the case of the human and the artificial, while the cow's milk was far behind the apparent solution.—*Pharmaceutical Journal.*

MENTAL POWER AND OXYGEN.

THE VALUE OF FRESH AIR IN AUDITORIUMS.

Rev. Wm. Taylor, now Bishop of Africa, is one of the most unique evangelists of modern times. He belongs to a class of wonderful workers. He is a man of large practical sense. His field is literally the world. Whether in California, Australia, India, South America or South Africa, unequaled results have attended his labors. He is now in Congo, where he has inaugurated self-supporting missions on a very large scale. While laboring in South Africa, he held a short series of meetings in Graham's Town. The church was the finest and most commodious structure in the city. It was crowded. The results of the first day's service were unlike what they had been elsewhere. The next day the leading brethren came to him sadly disappointed and bewailing their own dullness as the cause of the failure. Mr. Taylor assured them that the real cause was the lack of ventilation in their beautiful church. Said he: "The immense amount of carbonic acid gas thrown out from the lungs of fourteen hundred persons must poison the atmosphere of the church in a very short time. This poison corrupts the blood and blunts the nervous sensibilities of the people, and hence precludes vigorous mental action, produces headache and drowsiness and sadly injures the health. We cannot afford to spend our precious evenings poisoning each other, for that is the very condition that killed the British soldiers in the Black Hole of Calcutta. It is out of the question to do any great work without a good supply of oxygen." The people could hardly realize that their truly splendid church could be defective in anything. But there was no time to stop for discussion, and a daring trustee, whom everybody believed incapable of doing wrong, took a hammer and went through the galleries and smashed a pane in each window on both sides. "That," says Mr. Taylor, "in effect, gave us a receptive people to preach to." The result was that there followed an awakening of great moral and spirirtual power. We have been in many meetings where the lack of oxygen was sufficient to account for the deadness of thought and feeling.—*Youth's Companion.*

HIGH TEMPERATURES OF THE BODY.

EXPLANATION OF THE DANGER.

At the meeting of the French Association for the Advancement of Science, held at Marseilles, September 18, 1891, M. Maurel, of Toulouse, read a paper on the above subject. "We know," says M. Maurel, "in the first place, that an animal does not survive its leucocytes, and, again, that in man the axillary temperature is lower by 1 deg. or 1 and 1-2 deg. C. (1.8 deg. to 2.7 deg. F.) than the temperature of the interior of the body. Now, it has been established, experimentally, that a temperature of 44 deg. to 45 deg. C. (111 1-5 deg. to 113 deg. F.) kills our leucocytes in a few minutes; that in a temperature of 43 deg. to 44 deg. C. (109 and 2-5 deg, to 111 and 1-5 deg. F.) our leucocytes do not live an hour; finally, that in a temperature of 42 deg. to 43 deg. C. (107 and 3-5 deg. to 109 and 2-5 deg. F.) they may live for three hours, retaining all their activity, and that if this activity becomes lessened they may still, by lowering the temperature, be made to live for twelve hours. These experimental facts explain, to my mind, the danger of axillary temperatures above 41.5 deg. C. (106.1 deg. F.), since this temperature corresponds to 42.5 deg. or 43 deg. C. (108 and 1-2 deg. to 109 and 2-5 deg. F.), which will kill our leucocytes, and consequently, also, the human body; it is for the reason that we never see a patient survive a temperature of 42 deg. C. (107 and 3-5 deg. F.). It also explains the beneficial effect of lowering, by 1 deg. or 2 deg. C. (1 and 4-5 deg. or 3 and 3-5 deg F.) a febrile temperature, since, instead of being in a temperature rapidly mortal, our leucocytes are exposed to a temperature in which they possess their maximum activity.—*La Semaine Medicale.*

Medicinal Properties of Vegetables.—Spinach has a direct effect upon the kidneys.

The common dandelion, used as greens, is excellent for the same trouble. Asparagus purges the blood. Celery acts admirably upon the nervous system, and is a cure for rheumatism and neuralgia.

Tomatoes act upon the liver.

Beets and turnips are excellent appetizers.

Lettuce and cucumbers are cooling in their effects upon the system.

Onions, garlic, leeks, olives, and shalots, all of which are similar, possess medicinal virtues of a marked character, stimulating the circulatory system, and the consequent increase of the saliva and the gastric juice promoting digestion.

Red onions are an excellent diuretic, and the white ones are recommended to be eaten raw as a remedy for insomnia. They are tonic and nutritious.

A soup made from onions is regarded by the French as an excellent restorative in debility of the digestive organs.—*Journal of Balneology and Dietary.*

Longevity of Birds.—It is a well-known fact that birds enjoy much longer terms of life than do mammals. Hesiod and Pliny both tell us of rooks that lived to the patriarchal age of 700 years, and that the average life of a raven was 240 years. How far this was correct we cannot determine. It is well known that they outlive man. While swans have been known to live 200 years, chaffinches and nightingales have been kept in confinement for fifty years. Girardin tells us that he had a heron forty-two years, and that he knew of two storks that built their nests in the same place for forty years.

SOAP PLANTS.

SOAP FROM THE VEGETABLE KINGDOM.

BY JOHN R. JACKSON.

Probably at no period of history has soap been brought so prominently before the civilized world as at the present. The article is a compound substance, and the reputation of rival soap-makers is due probably as much to the persistent manner in which they keep their special products before the notice of the public as to any particular ingredient used in their composition. Practically, soap may be said to be a vegetable product, for, indirectly, vegetable substances, especially oils, enter largely into its manufacture; but, besides these, there are numerous plants that possess a direct saponaceous principle. Many of these are well known, but we do not remember that anything has been done—at least, in recent times—in this country to collate matter bearing on these interesting, and, in many cases, useful plants, a better or more extended knowledge of which might lead to many of them becoming of some practical utility. It is true that, in 1875, Professor Bernardin, the late able conservateur of the Museum at Melle, near Ghent, published a little pamphlet, entitled "Classification de 40 Savons Végétaux;" but, as the circulation of this contribution to the subject is necessarily limited, a few general notes on saponaceous plants will probably have some interest. These notes have been arranged in botanical sequence, as probably the most useful to all concerned.

Leontice leontopetalon, L.—A herbaceous plant belonging to the natural order berberideæ, growing about a foot high, native of Asia Minor, frequent in Greece and all the islands of the Archipelago. Little seems to be known as to the actual detergent properties of the plant, except that the root is stated to be used at Aleppo as a substitute for soap.

Monnina polystachya, R. and P., and M. salicifolia, R. and P.—Plants belonging to the milkwort family—polygaleæ—known as "yalhoi" in Peru; and or them Lindley says: "The bark of the roots, when fresh, is pounded and moulded into balls for use in washing. The dry bark also is detergent, and readily froths when agitated in water. It is used by the Peruvians as a substitute for soap, and the ladies of Peru ascribe the beauty of their hair to the use of an infusion of this bark. The silversmiths of Huanuco employ it also for cleansing and polishing wrought silver."

Saponaria officinalis, L. — This well-known plant belongs to the natural order caryophylleæ, and is generally known as the "soapwort," or "fuller's herb." Though found in hedges, on roadsides and in fields, chiefly in the Southwest of England and North Wales, it is considered only a naturalized plant in Britain. It is distributed through Europe and West Asia, and has been introduced into the United States. The leaves, when boiled or bruised in water, become saponaceous, and were used in olden times as a substitute for soap, especially, it is said, by the medicant friars. The lather so formed has all the effects of ordinary soap, readily removing grease; and, in consequence of its not being affected by acids, it has been suggested that it might be usefully applied where soft water is not obtainable.

Gypsophila struthium, L.—This is generally known under the name of "Egyptian soap root." It is a native of Spain, where it is said to be used instead of soap for scouring. The root of G. paniculata, L., is used in Lycia for a similar purpose, and it is also extensively sold in the bazaars of Western Afghanistan and North Eastern Persia as a soap for washing clothes. The powdered roots of this species, mixed with honey, are used as food by the people in Lycia. Dr. Flückiger has recently shown that G. arrostii, Gussone, yields Sicilian soap root, samples of which have been collected in Catania. The following species of gypsophila are also included in Professor Bernardin's list as producing saponaceous roots: G. acutifolia, Fisch., Eastern Europe and Siberia; G. altissima, L., Sibera; and G. fastigiata, L., described as the "saponaire" of Spain; and, besides these, the following plants belonging to the same natural order: Lychnis chalcedonica, L., known in France and Portugal as the "Croix de Malthe;" in Italy, as the "Croce de Cavaliere," and in Spain as the "Croix de Jerusalem." It is stated to be used as soap in Tartary. Lychnis dioica, L., native of the South of Europe, is used at Pesth for washing; and L. sylvestris, Schkr., also a European species, is similarly used, as well as Agrostemma githago, L., which is now sunk under lychnis; and Silene inflata, Sm. Little, however, seems to be known about the extent to which these last-named plants are used.

Acanthophyllum macrodon, Edgew.—This is a very spiny, tufted, herbaceous plant belonging to the same order—caryophylleæ—found in India and Afghanistan. The root stock, under the name of "bekh" (a name which is also applied in Afghanistan to Gypsophila paniculata), is used as a soap-substitute for washing clothes, woolens, etc., and is sold in all the bazaars of the larger villages.

Sida lanceolata, Retz.—It is stated that this malvaceous plant is known as the "broom plant," in Brazil, and that a soap is made of the ashes.

Adansonia digitata, L.—This is the well-known "baobab" of West Tropical Africa, and belongs to the tribe bombaceæ, of the natural order malvaceæ. The ashes of the fruit are boiled with rancid palm oil, and are said to form an excellent soap, in Africa.

Balanites œgyptiaca, Delile.—This plant, which is a shrub or small tree, is known as "soump" in Senegal, and belongs to the natural order simarubeæ. The young fruits are purgative, and when ripe are edible and formed into an intoxicating drink by the negroes of the West Coast of Africa. Bernardin says the roots are saponaceous.

Æsculus pavia, L.—The American horse chestnut, or buck-eye. The roots of this tree are said to be preferred even to soap in some parts of America for washing and whitening woolens, blankets, and dyed cottons, the colors of which are improved by the process. Satins washed in this manner, and carefully ironed, look almost as well as new.

Sapindus saponaria, L.—A slender tree, native of the West Indies and Tropical America. It bears a fruit about the size of a gooseberry, composed of a thick, tough, almost horny rind, covering a hard, globose black seed. The outer covering of the fruit, if allowed to stand in water for some little time, swells and produces a lather. Browne says: "The seed-vessels of this plant are very detersive and acrid; they lather freely in water, and are frequently used instead of soap, for a few of them will cleanse more linen than sixty times their weight of that composition, but they are rather too sharp, and observed to corrode or burn linen in time, and the water in which the tops or leaves have been steeped or boiled is observed to have the same quality in some degree."

S. Mukorossi, Gærtn.—This species is known as the "soap-nut tree" of North India. It is a handsome deciduous tree, cultivated throughout Northwest India, Bengal, Kumaon, Sylhet and Assam. The fruit, which is somewhat similar to that of the last-named species, but considerably larger, is very much used in India as a substitute for soap, for which purpose it is also exported. It is chiefly used for washing silk and woolen cloth, being regarded as superior soap by native manufacturers.

S. Trifoliatus, L.—A large tree of Bengal, South India, and Ceylon, and often cultivated. It is known as the "soap-nut tree" of South India, and its seed-vessels are used for a similar purpose to the last-named species.

Colubrina, asiatica, Brongn.—A large shrub or small tree of Tropical Asia, Queensland, Northern Australia and extending into the Pacific Islands. It belongs to the natural order Rhamneæ. Seemann says that the Fijians use the leaves in the preparation of a hair-wash to destroy vermin.

Vitis saponaria, Seem.—A climbing plant belonging to the natural order Ampelideæ, and found in Queensland, as well as in the Fiji Islands, where, Seemann says, the natives use it for the same purposes as the last. The stem, especially the thicker part, is cut into pieces from a foot to eighteen inches long, heated on hot stones, and, when thus rendered quite soft, it produces in water a rich lather, almost equal to that of soap.

Gymnocladus chinensis, Baill.—This leguminous tree is a native of China, as its specific name indicates. It is thus described in Forbes and Hemsley's "Index Floræ Sinenis": "This is the soap-tree, the fei-tsao-tou, or fat black bean, of the Chinese, used by women in washing their heads and hair." The pods, which are about three inches long, one and half inch wide, and one inch thick, are beaten with a mallet, and placed in water for about two days. They are sold in the market at the rate of about sixteen to twenty a penny. Bernardin says that the bark of the branches of the allied species, G. canadensis, L., is used in Canada as soap.

Gleditischias sinenis, Lam.—This is also a Chinese leguminous plant, the pod of which, when dry, is quite black, about ten inches long, one and a half inch wide, and very thin. It is used by the Chinese as soap, and also to restore animation in partially drowned persons.

Entada scandens, Benth.—A large, woody, leguminous climber, found in the tropics generally. The spirally-twisted stems are soft, fibrous, and spongy, and would appear to contain saponaceous matter, for the ladies of Manilla use them, under the name of "gogo," for washing the hair. The kernels of the seeds are used in Nepal for the same purpose, and in Bengal the hard seeds are employed by washermen for crimping linen.

Tetrapleura Thonningii, Benth.—A large leguminous tree of West Tropical Africa. The pods, which are from six to ten inches long, and about one and a half inch broad, are rounded at the apex, and each valve has a stiff longitudinal, often wavy, wing running down its middle from end to end. They are of a shiny brown color when dry. These fruits or pods contain a saponaceous principle, and are sold in the Sierra Leone markets for washing purposes. They are also occasionally imported into this country. The plant is known as the "ogagouma" in Gabon.

Acacia concinna, D. C.—A climbing leguminous plant, native of the Eastern Himalayas, Western and Eastern peninsulas of India, Ceylon, Malay Islands and China. The pods vary in length from four to six inches, are about three-quarters of an inch wide, and one-quarter of an inch thick. They are constricted between the seeds, and, when dry, are of a brown color and have a shrivelled appearance. A considerable trade is carried on with them in some parts of India, as they are much used for washing, especially for the head.

Bernardin says that the pods of Acacia latronum, Willd., a small Indian tree, are used for the same purposes.

Albizzia lophantha Benth—A tall shrub or small tree of West Australia; is described as containing 10 per cent of saponin in the dried roots; while A. lebbek, Bth., a tall tree, widely distributed through India, Burmah, Ceylon, Malay Islands, China, North Australia, and Tropical Africa, is said by Bernardin to contain a saponaceous principle in its leaves, in consequence of which they are used in India and Arabia for washing purposes.

Enterolobium timbouva, Lam.=E. cyclocarpum, Griseb.—A lofty leguminous tree of Jamaica and Venezuela. The pod is nearly circular, the stalk being apparently situated in the center of the circle, and the positions of the seeds are marked by regular depressions. These pods are known under the name of "orejera," and are used for washing in New Grenada.

Quillaia saponaria, Mol.—A tree some fifty to sixty feet high, native of the Chilian forests, and belonging to the natural order rosaceæ. The tree is known as the "quillai" or "cullay" tree, and the bark as quillaia, or soap-bark. It is rough and dark-colored externally, while the inner bark is of whitish-gray color. It is very rich in saponin, and it is said to contain a large quantity of carbonate of lime and other mineral matter. It is commonly used in Chili for washing clothes and in France for washing silks, as it is said to remove dirt and grease and to impart a luster without injuring the color. It may also be used for cleansing hair-brushes, and for similar purposes, under conditions in which soap and other alkalies are powerless. Besides this, the pulverized bark makes an excellent hair-wash, and is said to be largely used by French hairdressers. By placing some of the powder in water and stirring it, it readily produces a froth, and, in consequence of this, it is said to have been used to give a fictitious head to stale beer. Quillaia sellowiana, a Brazilian species, is described as having similar properties.

A species of *Begonia*, known in Egypt as the "achaloax," furnishes a bark, a decoction of which, according to Bernardin, is used in sheep-washing.

The leaves of the well-known papaw (*Carica papaya, L.*), also contain saponin, and are used by the natives in tropical countries for washing clothes.

Jacquinia armillaris, Jacq.—A low, rigid tree belonging to the natural order myrsineæ, and found in the West Indies, Brazil and Florida; has saponaceous leaves, which are sometimes used as a substitute for soap.

Pircunia saponacea. Welwitsch, known in Angola as "mutonga-tonga."—The roots are said to be saponaceous. The genus is now referred to phytolacca.

Amongst monocotyledonous plants there are several that have saponaceous properties. Thus, in the order scitamineæ, the fruit of Bromelia pinguin, L., is reported as having been found useful as a soap-substitute. A kind of vegetable soap is stated to have been prepared in Jamaica some years ago from the leaves of the American aloe (Agave americana, L.), which was found as detergent as Castile soap for washing linen, and had the superior quality of mixing and forming a lather with salt water as well as fresh. In Peru the leaves of this plant are used by first wetting the clothes, and then beating them with a leaf of the agave which has been crushed; a thick white froth is produced, and, after rinsing, the clothes are quite clean.

Chlorogalum pomeridianum.—A liliaceous plant of California, forming a large oblong bulb covered with coarse brown fiber. It is known in California as the "amole." The bulbous root rubbed in water makes a thick lather, and is said to have a similar smell to brown soap. It was very much used by the North American Indians before the American possession of the country, and at the present time it is also much in demand for washing clothes, by merely removing the outer husk and rubbing the bulb over the fabric in the same way as soap.

Yucca filamentosa, L., and several other species of yucca, natives of Carolina and Virginia, are described as yielding a saponaceous matter from their roots.

From the foregoing list of plants it will be seen how varied are the species in their botanical affinity, so that the saponaceous principle, though characteristic in some natural families, is very widely diffused.—*Chemist and Druggist.*

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Horse Power of a Whale.—The horse power of a whale has been made a subject of study by the eminent anatomist, Sir William Turner of the University of Edinburgh, Scotland, in conjunction with the equally eminent Glasgow ship builder, Mr. John Henderson. The size and dimensions of a great finner stranded several years ago on the shore at Longriddy furnished the necessary data for a computation of the power necessary to propel it at a speeed of twelve miles per hour. This whale measured 80 feet in length, 20 feet across at the flanges of the tail, and weighed 74 tons. To attain a speed of twelve miles per hour it was calculated that 145 horse power was necessary.

Utilizing Sawdust.—The *Engineer* has seen it stated that a German firm has perfected a means of making a profitable disposition of sawdust, by which it is applied to a mechanical use, and has thus far been attended with success. An acid is mixed with the sawdust and the whole mass moulded into blocks or any other form, resulting in a fine material for building purposes. The blocks assume extreme hardness of surface and are practically non-combustible. The material in the moulded forms is said to be much stronger than timber in these forms, and much lighter than iron or steel, and can be prepared cheaply.

CONSEQUENCES TO BE DREADED.

Each succeeding winter, during several years past, has been observable a very marked increase in the ravages of the malady popularly known as "La Grippe" in all parts of the country. In a milder form as influenza, it was already a familiar annoyance, when Russia sent to us as an epidemic the infinitely more violent and vicious variety of it bearing the new French name. As a true epidemic it assailed us, but such it has not remained. Wherever it once gained a hold, it seems to have become endemic, its germs lying latent or at least manifesting infrequently during the hotter months of the year, but inevitably springing into energetic and malevolent activity with the return of cold weather. Notwithstanding the apparently ample opportunities for intimate acquaintance with it, there is even yet a plentiful lack of knowledge among the medical profession about "La Grippe." Bacteriæ, infusorial animalculæ, meteorologic conditions and what not else—even including "sun spots" to which a certain class of thinkers eagerly relegate all inexplicable things—have been assigned as its causes. And certainty of treatment is by no means established, for the bewildering fact is undeniable that specifics in some cases, are totally ineffective or even injurious in others; and no other affection more conspicuously demonstrates the hopelessness of treatment by symptoms—that pathologic blunder of the ages. But these things are positively known, that it is contagious, infinitely varied in its modes of manifestation and degrees of virulence, really dangerous as well as distressing in itself and almost inevitably rich in sequellæ of serious and even fatal character. In this latter evil characteristic it is quite as distinctly marked as scarlet fever, diphtheria or measles, and perhaps were statistics upon the subject carefully gleaned, it would be found even worse in this regard than either of those justly dreaded diseases, with the possible exception of the second named. As a rule scarlet fever and measles, when they leave their traces at all, do so in weakening or perverting the functions of single organs. Thus, one may have impaired sight, another dulled hearing, a third torpidity of the liver or bowels, a fourth a kidney disease or enlargement of the spleen, as a consequence of either of those complaints. But the "grip" leaves behind it conditions inimical to life. The malign forces engendered by it seem to prey upon the centres of vitality. Enfeebled action of the heart, the very main-spring of existence, is one of the most common results and is among those least easy to correct. Fatal disorders of the pulmonary apparatus are yet more frequent and often so speedily productive of death that the line between the primary malady and its product, which is the immediate cause of the patient's demise, may hardly be perceived. Scarcely less to be dreaded are the sequent affections of the nervous system which, attacking the brain and its continuations throughout the victim, lead to general prostration and even to hopeless insanity Even where these dire consequences are not realized in such extremes, there follows upon almost all cases of "La Grippe," a morbific tendency. The vitality of the sufferer is so lowered that he is made the easy prey of any disease to which he may be exposed. To counteract these dangerous influences by "a course of tonics" or a "change of air," or the treatment of symptoms as they rise, is but vain toying with fate. Nothing can possibly be effective for good, but a thorough building up of the system through a purification and revivification of "the blood, which is the life." Supply the enfeebled and diseased organs with the generous, rich, invigorating stimulus of good pure blood, and they will speedily gain strength to throw off the venom left by the malady and acquire normal tone that will enable them to resist further attacks from other foes. It may be positively affirmed that no one whose blood was in the condition produced by a thorough course of Ayer's Sarsaparilla has ever yet suffered a serious attack of "La Grippe," and that in no case has that alterative failed to neutralize the sequellæ of that affection, if promptly and properly resorted to. The medicine is a scientific preparation of the most effective blood alteratives—sarsaparilla, yellow dock and stillingia—in such proportions as experience has demonstrated productive of the best results, and never fails of its objects.

THE SEIDL ORCHESTRA AT MADISON SQUARE GARDEN FOOD EXPOSITION IN OCTOBER.

If there was any doubt existing in the mind of the public as to the success of the great Food Show, to be held at Madison Square Garden in October next, such doubt was set at rest by the announcement that Herr Anton Seidl, the great musical director, with his famous orchestra, is to conduct the afternoon and evening concerts during the entire time of the exposition. These concerts, which will be given in the amphitheatre, where the music can be listened to and enjoyed by every visitor to the exposition without additional charge, will be made a special feature of the show. Provision has been made whereby from 2,500 to 3,000 persons can be accommodated with seats at these concerts. The selection of Seidl to conduct the musical part of the exposition is in keeping with everything else in connection with the undertaking, the magnitude and importance of which is gradually dawning upon the general public. As to the general management of the United States Food Exposition, the names of the gentlemen composing the exposition committee of the Food Manufacturers' Association are a guarantee to the public that this enterprise is only that which it is claimed to be—an earnest effort upon the part of honest men to improve the quality of our food supply. The following is the committee in charge of the affairs of the exposition: Read Gordon, of Gordon & Dilworth; Alphonse Biardot, Franco-American Food Company; Edward Elsworth, the Clover Mills; Frank Green, of E. C. Hazard & Co.; and William J. Rogers, of New York Condensed Milk (Gail Bordens) Company. Daniel Brown is the general manager of the exposition, with headquarters in Pierce building, Hudson and Franklin streets, New York.

As our readers are doubtless aware, this association will hold a food exposition at Madison Square Garden, New York, in October next, to be devoted exclusively to food products. Only the manufacturer will be allowed to exhibit, and only such articles of food as the manufacturer is willing to put his name upon and warrant to be the same as he offers for sale to the public. It is confidently believed that any effort in the direction indicated upon the part of the food manufacturers cannot but prove of benefit to the consumer. Excursion rates are being made over the various railroads in the United States, with the view to bringing visitors from every State and Territory in the Union. A bureau of information will shortly be opened at the offices of the association for the accommodation of those who desire to know all about excursion and hotel rates, rooms to rent in New York City, etc. A branch post office will be established at the exposition to be known as the Food Exposition Post Office, where strangers and others can have their mail addressed.

DON'T TOBACCO SPIT YOUR LIFE AWAY

Is the name of a little book that tells all about *Notobac*, the *only guaranteed cure* for the *tobacco habit* in *every form.* This book is mailed free. Contains many testimonial letters, reporting *cures in ten days* and a gain of as many pounds. *Notobac* costs but a trifle, and the man who *wants to quit and can't* had better write for the book to-day Address Sterling Remedy Co., Box 474, Indiana Mineral Springs, Ind.

A FOREIGN TRIBUTE.

"Health," a leading weekly journal of domestic and sanitary science published in London, England, in a recent issue has the following interesting statement in reference to a Watertown establishment which stands so well at home as to merit all that has been said of it anywhere:

"We have received samples of Messrs. Farwell & Rhines' 'Diabetic Food,' manufactured at Watertown (N. Y.) U. S. A. The attention which of late years has been given to food in relation to the cure of diabetes, and to the production of diet articles in which the quantities of sugar and starchy matters are reduced to a minimum, has evidently animated Messrs. Farwell & Rhines in the production of the preparation under notice. In the form of a flour, it can be readily used not only to make bread itself, but to manufacture many other kinds of tasty articles; so that the diabetic patient is presented with a staple and fundamental form of food, at a most reasonable cost, and one which can be utilized at pleasure, in place of confining him to one article of diet. Chemical examination of this food shows that it is very rich in gluten, and that its proportion of saccharine matter is extremely limited These are precisely the characters to be looked for in a typical diabetic food. By using Messrs. Farwell & Rhines' Food, a true and palatable bread is made, such as any one may eat with pleasure and nutritive profit. Medical experience of this preparation has fully endorsed its chemical excellence and we should say that for dyspeptics, in whose cases starch and sugar cause the ailment from which they suffer, this 'Diabetic Food' will also be found most suitable. It can be made into rolls and pancakes with ease, and can also be used to thicken soups. Samples of the food, and of Messrs. Farley & Rhines' other foods (Gluten-flour, Barley Crystals, Health flour, etc.), will be forwarded by Mr. W. J. Holland (260 Oxford st., London, W.), free, on application."

Messrs. Farwell & Rhines also make the finest flour especially for biscuit, cake and pastry, that can be made from wheat.

HORSFORD'S ACID PHOSPHATE

Makes an invigorating drink with water and sugar only. Delicious. Beware of imitations.

Dr. H. T. Turner, Kasson, Minn., says: "I have found it very beneficial in nervous debility, from any cause, and for indigestion."

HARMONIZED MELODIES.

If you want a collection of songs that is up to date, "Harmonized Melodies," which is sent postpaid to any address for 60 cents, by the publisher and compiler, F. Trifet, 408 Washington street, Boston, Mass., is what you are looking for, in all probability. It contains all the newest and best songs of the day, together with a generous sprinkling of some of the old familiar tunes that fond recollection makes dearer to us than anything else which ever has been or ever will be composed. Words and music, all the parts being given, are complete, and 256 pages, each 10x12½ inches, make the book unsurpassed as regards quantity, quality, arrangement and price. It is suitable for the home or the entertainment platform, being full of rare gems of song.

TABASCO SAUCE.

PAPRIKA, New York City, N.Y.—What is "Tabasco Sauce" made of? It comes in little bits of bottles, and appears to be as much hotter than cayenne pepper as cayenne is hotter than the stuff the cheap groceries sell for "ground black pepper."

Tabasco is made from the pods of the dwarf capsicum annuum (bird pepper), which grows everywhere in the Gulf States, but is especially plentiful in Louisiana, Alabama, and Florida. We do not know just how the pepper is manufactured in preparing the sauce, but that portion of the manufacture could easily be improvised, since all that is necessary is to crush the peppers and add some preserving liquid—glycerine, alcohol, or even strong vinegar. The reason that the sauce is so much hotter than the commercial red or cayenne pepper, is that the latter is mixed with from ten to sixteen times its weight of starch or wheat flour, baked and powdered before being sent to market, while Tabasco undergoes very little dilution.

The above extract from a pharmaceutical journal we consider complimentary, but deem it necessary to add that the main reason why "Tabasco" is the best is that it is a selected Mexican pepper, transplanted, carefully cultivated and manufactured by a process peculiar to Mr. McIlhenny, who takes pride in maintaining the high standard of his well known Tabasco Sauce.

WORTHINGTON CO.,

747 Broadway, New York, announce for immediate publication as No. 25 in their International Library: "The Household Idol," by Marie Bernhard, author of "The Rector of St. Luke's." Translated by Elise L. Lathrop. 1 vol., 12mo, ½ Rox, $1.25; paper, 75 cents. This, the latest novel of Marie Bernhard, author of "The Rector of St. Luke's," is a charming story of life among the highest circles of society, the scene being laid at the present time. The heroine, "The Household Idol," is the beauty and belle of all Hamburg, idolized by parents and friends. One of the chief personages is a celebrated artist, and the book contains graphic descriptions of studio life. The interest is fully sustained throughout the entire story, the characters being drawn with singular clearness and fidelity.

LAND-SEEKERS.

It will be of interest to those contemplating settling in the Northwest, to know that the choicest farming and timber lands in Wisconsin are tributary to the Wisconsin Central Lines. Settlers on these lands have all the advantages of healthful climate, good market facilities, abundance of fuel and building material, pure and sparkling drinking water, and other important benefits which cannot be enjoyed on the prairies of the West. No droughts, no cyclones, no grasshopper plague and no fever and ague. Now is the time to select choice lands at low prices. Wisconsin is considered one of the most prosperous States in the Union. Located directly on the Wisconsin Central Lines in this State are the thriving cities of Burlington, Waukesha, Fond du Lac, Oshkosh, Neenah, Menasha, Waupaca, Stevens Point, Marshfield, Chippewa Falls, Eau Claire, New Richmond and Ashland. For tickets, time tables, maps and full information, apply to G. R. Fitch, D. P. A. Wis. Central, New York, or to J. C. Pond, general passenger and ticket agent, Chicago, Ill.

STATE OF OHIO, CITY OF TOLEDO, }
LUCAS COUNTY. } ss.

FRANK J. CHENEY makes oath that he is the senior partner of the firm of F. J. Cheney & Co., doing business in the City of Toledo, County and State aforesaid, and that said firm will pay the sum of ONE HUNDRED DOLLARS for each and every case of Catarrh that cannot be cured by the use of HALL'S CATARRH CURE. FRANK J. CHENEY.

Sworn to and before me and subscribed in my presence this 6th day of December, A. D. 1886.

[SEAL.] A. W. GLEASON,
Notary Public.

Hall's Catarrh Cure is taken internally and acts directly on the blood and mucous surfaces of the system. Send for testimonials, free. F. J. CHENEY & CO., Toledo, O.

☞ Sold by Druggists, 75c.

BUFFALO LITHIA SPRINGS.—HOT SPRINGS.

TWIN REMEDIES IN

GOUT, RHEUMATIC GOUT AND RHEUMATISM.

WHAT THE HOT SPRINGS PHYSICIANS SAY:

Dr. Algernon S. Garnet, Surgeon (retired), U. S. Navy, Resident Physician, Hot Springs, Ark.:

"My experience in the use of BUFFALO LITHIA WATER is limited to the treatment of **Gout, Rheumatism** and that hybrid disease, '**Rheumatic Gout**' (so called), which is in contradistinction to the **Rheumatoid Arthritis of Garrod.**

"I have had *excellent results* from this Water in these affections, *both in my own person and in the treatment of patients for whom I have prescribed it.* Of course, the remedial agent is its contained **Alkalies** and their solvent properties.

"Hence it is a **prophylactic,** *as well as a* **remedy in Nephritic Colic,** *and forming* **Calculi** *when due to a redundancy of* **Lithic Acid.**"

The Late Dr. Wm. F. Carrington, Resident Physician, Hot Springs, Ark., Surgeon (retired), U.S. Navy, Surgeon Confederate States Navy:

"BUFFALO LITHIA WATER, Spring No. 2, has signally demonstrated its remedial power in **Gout, Rheumatic Gout, Rheumatism, Uric Acid, Gravel** and other maladies dependent upon the **Uric Acid Diathesis.**

"*It not only eliminates from the blood the deleterious agent before it crystallizes, but* **dissolves** *it in the form of* **Calculi,** *at least to a size that renders its passage along the ureters and urethra comparatively easy.*"

Dr. T. B. Buchanan, Resident Physician, Hot Springs, Ark.:

"*Send me five cases* BUFFALO LITHIA WATER, Spring No. 2. I have made use of this Water for **Gout** *in my own person and prescribed it for patients similarly suffering, with the most decided beneficial results. I take pleasure in advising* **gouty** *patients to these Springs.*"

Dr. G. W. Lawrence, Resident Physician, Hot Springs, Ark.:

"I prescribe BUFFALO LITHIA WATER with great confidence, in all diseases of **Uric Acid Diathesis.** When traveling, it is my habit to use this Water as a guarantee for getting a pure water."

Dr. L. S. Ordway, Resident Physician, Hot Springs, Ark.:

"I have used BUFFALO LITHIA WATER Spring No. 2, very extensively and successfully in my practice, in cases of *Rheumatism of the Arthritic* form, especially when complicated with weak, inactive *Kidneys, with inclination to Bright's Disease.* I have also found it an efficient remedy in *Albuminuria of pregnancy.*"

DR. JOHN A. BLAYDES, Pres. HOT SPRINGS MEDICAL AND SURGICAL INSTITUTE, ARKANSAS. DR. R. O. BLAYDES, Sec'y.

THE STATEMENT OF DR. BLAYDES:

"We have made use of BUFFALO LITHIA WATER with patients of this institution in many obstinate cases of Gout, Rheumatic Gout and Rheumatism, with uniformly excellent results, and in diseases generally of Uric Acid Diathesis regard it as an invaluable remedy. Its action in this class of cases indicates certainly the possession of some extraordinary property."

WATER IN CASES OF ONE DOZEN HALF-GALLON BOTTLES, $5, F. O. B. HERE.

☞ *Descriptive Pamphlets Sent Free.* ☜

THOMAS F. GOODE, - - - Buffalo Lithia Springs, Va.

TEETOTALISM SAFE.

CARDINAL NEWMAN'S OPINION.

In Cardinal Newman's "Apologia" there occurs a passage to the point; he observes, "He who made us has so willed that in mathematics, indeed, we should arrive at certitude by rigid demonstrations, but in religious inquiry"—and I may add in politics, morals, and medicines—"by accumulated probabilities." Could we prove that Christianity commanded all men to abstain from alcohol, as it undoubtedly does from lying and thieving, could we show that in the smallest dose alcohol was a poison, like belladonna and strychnine, we should make alcohol over to the doctors, and banish it from the table; the temperance cause would be triumphant, and the agitation over, but we have to fight our battle with far other weapons. The temperance is essentially a great philanthropic movement. It is not a question whether moderation is unobjectionable or not. It finds its *raison d' etre* in the suffering and sin caused and aggravated by excessive drinking; its aim is to free many, who cannot be moderate, from temptations which they have not otherwise the physical and moral strength to resist; it rests on the assumption that total abstinence is safe and advantageous, and that the use of stimulants is at the best unnecessary, at worst a constant danger. "Depend upon it," says Cardinal Newman, "the strength of any party lies in its being true to its theory. Consistency is the life of a movement." Now, as far as the safety of teetotalism goes there can hardly be any difference of opinion; most moderate drinkers admit the wisdom and superior economy of total abstinence, at any rate in health, and this is a very great point.

Exhaustion

HORSFORD'S ACID PHOSPHATE.

A most wonderful remedy, of the highest value in mental and nervous exhaustion.

Overworked men and women, the nervous, weak and debilitated, will find in the Acid Phosphate a most agreeable, grateful and harmless stimulant, giving renewed strength and vigor to the entire system.

DR. EDWIN F. VOSE, Portland, Me., says :

"I have used it in my own case when suffering from nervous exhaustion, with gratifying results. I have prescribed it for many of the various forms of nervous debility, and it has never failed to do good."

Descriptive pamphlet free.

RUMFORD CHEMICAL WORKS, Providence, R. I.

IMITATIONS.

CAUTION: Be sure the word "Horsford's" is on the label. All others are spurious. Never sold in bulk.

"Eat BEECHNUT Hams and Bacon."

GOLD LEAF.

THE THINNEST MATERIAL MADE BY THE HAND OF MAN.

There is probably nothing made by man that is as thin as a sheet of gold leaf. It is nothing more than a film, and is almost as light as air. The softness and tenacity of the metal, two opposite attributes which it possesses to a remarkable degree, render possible an operation that would reduce any other metal to powder. The thickness of the leaves vary. Some say that the thinnest have the thickness of but one-two-hundred and fifty-thousandth of an inch. So thin is the film of metal in the leaves that they are transparent. But instead of the beautiful golden-yellow color which gold is believed to possess, when held to the light they appear to be of a rich deep green. Every one of the thin square inches of gold that the beater begins on makes sixteen pieces of gold leaf. Including the waste, each inch is beaten out into leaves sufficient to cover an area of 400 square inches, which is larger than a gentleman's good-sized handkerchief. A gold bar, when beaten out, will carpet a ballroom 75 feet long by 66 wide. An impression is given from seeing the men swing the heavy mallets that gold-beaters as a class are particularly strong and healthy. This is not so. Their work is confining, and while their arms are strong and muscular they are not more healthy than any other class of men whose work keeps them indoors. Their work is steady. and they earn from $12 to $16 a week. Some of the work of trimming and preparing the molds for the beater is done by the wives and daughters of several of the men at their houses. A term of four years is not considered too long a time in which to learn the trade. Much skill is required in beating, so as to spread the metal evenly and keep the skins in good order. It is a trade that men seem to stick to. Men have remained in one place for twenty-five years, and in one of the half-dozen factories in Philadelphia the present foreman has been in charge for forty years.—*Philadelphia Ledger.*

DANGER OF CELLULOIDS.

A VERY INFLAMMABLE SUBSTANCE.

Mr. C. V. Boys informs the London *Times* of the dangers to women through the use of celluloid buttons. One case has come under his notice, in which a lady, standing near a bright fire, had one of the buttons of her dress ignited by the heat, whereby her dress was scorched. Mr. Boys gives the following rough tests of the danger of celluloid ornaments: A gas flame was directed against one side of an iron ring, the head of a common wax match containing phosphorus was placed on the ring about two inches from the flame, and a piece of the button was similarly placed at an equal distance on the other side. A second piece of the button was also placed on the ring, but at twice the distance from the flame. A small piece of paper was laid lightly over each. After five minutes, the first piece of the button ignited, and burned with a bright flame; after twelve minutes the second piece did the same; while after seventeen minnutes, the match head was still unchanged. On testing it with a light, it immediately burst into flame. A third piece of the button was pinned to the surface of an old duster, which for the purpose of the test was equivalent to a dress, and the duster was hung from a chair in front of an ordinary bright fire, but outside the fender, and at a distance at which the skirts of a dress might any day be found. In two or three minutes there was a cloud of smoke, and a hole was burned in the duster.

ABOUT THREAD MAKING.

DID YOU EVER WONDER HOW THE DIFFERENT SIZES WERE NUMBERED?

A prominent thread manufacturer said to our reporter: "Our house was originally a Scotch one, and even now has factories in Scotland and in Toronto. A branch was established in Newark, N. J., about thirteen years ago, but the business was by no means so extensive as it is now, until last January, when a large mill and an entirely new plant was put in. The direct reason for this move was the passing of the McKinley bill, which made it almost impossible for foreign makers to do any business in this country.

"By the way, did you ever examine into the process of manufacturing a spool of thread? It looks simple, but in reality it is a very complicated process. Only the very best Sea Island cotton can be used for this purpose. The cotton is taken in the raw state and torn all to pieces by a machine called a 'breaker.' It then goes through several other machines, by which it is carefully combed and freed from impurities. A machine called a 'slipper' then takes it up and twists it out into soft white yarn. This is carefully combed again, and it is then taken into another department, where several small strands of this yarn are twisted into one fine one. Three of these are twisted together, and you then have six-cord thread, which, after it is bleached, is ready for the market.

"Another interesting thing is the numbering of the thread. Every lady knows the size of thread that she requires for doing a certain piece of work, but very few of them know how it came to be so numbered. You see, when cotton thread was first made, 840 yards of it weighed one pound. This was called No. 1, and if a pound contained just twice this number of yards it was called No. 2, and so on. Until sewing machines were introduced only three-cord thread was made, but their introduction demanded a smoother and finer article. The numbers were left the same, but the six-cord thread had to be made of strands just twice as fine as those of the old article."

Fine Table Wines

From our Celebrated Orleans Vineyard.

Arpad Haraszthy & Co.

Producers of the

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CHAMPAGNE,

530 Washington St.

SAN FRANCISCO.

GROWERS OF

Chateau d'Orleans, the highest grade Claret made in America.

Cabernet Blend, the richest and finest of Table Clarets.

O V Chablis, possessed of all the delicate pungency of its French counterpart.

O V Sauterne, with the exact character and *Seve* of imported Sauternes.

The **Chateau d'Orleans** and **O V Chablis** are sold in glass only.

~~**DIABETES FLOUR.**~~

~~*Also Gluten Dyspepsia Flour & Barley Crystals.*~~

~~UNRIVALED IN AMERICA OR EUROPE.~~

~~**Circulars and Baking Samples Free.**~~

~~Write Farwell & Rhines, Watertown, N. Y., U. S. A.~~

GINGER PUDDING.—Two cupfuls of sugar, one cupful of molasses, five cupfuls of flour, one-half cupful of butter, one-half cupful of sour milk, three eggs, one tablespoonful of ginger, one teaspoonful of soda. Eat with soft sauce.

Armour's

Extract of BEEF.

The best and most economical "Stock" for Soups, etc.
One pound equals forty-five pounds of prime lean Beef.
Send to us for our book of receipts, showing use of
ARMOUR'S EXTRACT in Soups and Sauces.

ARMOUR & CO., Chicago.

HARTSHORN'S SELF-ACTING SHADE ROLLERS

NOTICE SCRIPT NAME OF Stewart Hartshorn ON LABEL, AND GET THE GENUINE

HARTSHORN

PURE

LAGER BEER.

"IMPERIAL"

AND

"CULMBACHER."

Brewed and Bottled Specially for

Hotels, Clubs

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Private Families

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BEADLESTON & WOERZ,

291 West 10th St.,

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Orders by Postal Card promptly attended to.

BLAIR'S PILLS.

Great English Remedy for GOUT, RHEUMATISM and KIDNEY COMPLAINTS.

Sure, Prompt and Effective.

Large Box, 34; Small, 14 Pills.

At all Druggists, and

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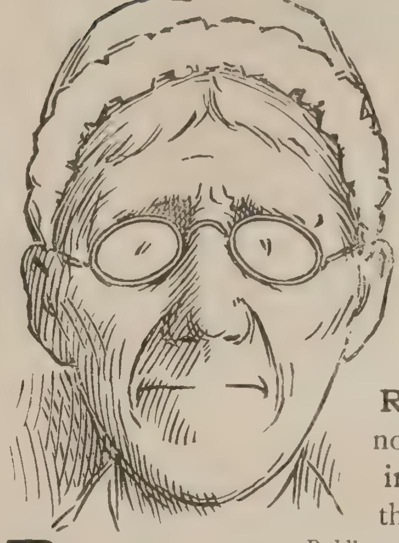

Painful Spectacles

the women who try to wash without Pearline. It's hard to look at, but it's harder yet to do it. Washing with **Pearline** is easy—easy for weak backs, easy on delicate fabrics. It does away with the Rub, Rub, Rub. There is nothing as convenient—nothing so effective. Washing with **Pearline** is safe; millions know it, and can tell the millions who want to know.

Beware Peddlers and some unscrupulous grocers will tell you "this is as good as" or "the same as Pearline." IT'S FALSE—Pearline is never peddled, if your grocer sends you an imitation, be honest—*send it back.*

276 JAMES PYLE, New York.

MINERAL WOOL.

A USEFUL WASTE MATERIAL.

Mineral wool is being put to new uses day by day, it being found adapted to purposes not thought of hitherto. It is, however, especially valuable, as applied to dwellings, cold storage houses, railroad cars, steam pipes and boilers, and other places where insulation is desirable. Mineral wool is a product of the refuse iron slag from iron furnaces manipulated with steam. The analysis of mineral wool shows it to be a silicate of magnesia, lime, alumina, potash and soda. It is plain, there is nothing organic in the material to decay or become musty, or to furnish food and comfort to insects or vermin. On the other hand, the fine, glassy fibres are irritating to anything which attempts to burrow in them. All past experience shows that houses lined with mineral wool will not become infected with animal life. All earths, mortars, felts and sheathing papers contain organic matter such as hair and vegetable fibre, which, after a time, undergo decomcomposition and create a variety of disease germs. This never occurs in connection with the use of mineral wool. The non-conducting properties of mineral wool are greater than that of any material used for cold storage or refrigerator work, and has consequently been adopted by those who keep abreast with the times. Some of the largest packing houses and many of the cold storage houses that have been erected in this country during the past few years have mineral wool as an insulation. It has also been adopted by several manufacturers of refrigerators. This, in connection with its use for deafening and fire-proofing in business blocks, hotels and private residences, has caused a large demand for the material, which, a few years since, was practically unknown.

LOBSTER SOUP.—Chop very fine a pound of lobster. Put a good tablespoonful and a half of butter in a saucepan over the fire, and when it is melted rub into it three even tablespoonfuls of flour. When perfectly smooth add a pint of soup stock and cook for a few moments stirring all the time, then add the lobster meat, a pint of cream, salt, pepper and mace to taste; boil up and serve.

TO THE CONSUMER!

"PAVONIA BEER."

Manufactured from the

Best Grade of Imported Malt AND Hops

ENTIRELY FREE FROM THE PUNGENT TASTE OF THE ORDINARY BEERS.

It commends itself to the Consumer as a pure, wholesome and delicate Beer; can be safely used by invalids.

Specify Export Pavonia Beer, White Label, when Ordering.

OTIS S. NEALE,

HOWARD STREET, BOSTON, MASS.

EVERY one in need of information on the subject of advertising will do well to obtain a copy of "Book for Advertisers," 368 pages, price one dollar. Mailed, postage paid, on receipt of price. Contains a careful compilation from the American Newspaper Directory of all the best papers and class journals; gives the circulation rating of every one, and a good deal of information about rates and other matters pertaining to the business of advertising.

Address

ROWELL'S ADVERTISING BUREAU,
10 Spruce St., New York.

Misanthropes

Often take a better and higher view of life and humanity, when relieved of digestive derangement. It is aptly said that "no man ever died a glorious death with disease below the diaphragm." Use ARMOUR'S PEPSIN TABLETS for indigestion and dyspepsia.

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PAMPHLETS AND CIRCULARS PREPARED.

SCIENTIFIC AND MEDICAL SUBJECTS

A SPECIALTY.

FAIR CHARGES AND PROMPT SERVICE

H. LASSING, M D.,

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"BILLET"

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Carefully Selected

French Sardines

Packed in Choicest Olive Oil.

AT ALL LEADING GROCERS.

THURSTON'S IVORY PEARL TOOTH POWDER

KEEPS TEETH PERFECT AND GUMS HEALTHY

ORRIS & WINTERGREEN. PINK & WHITE COLORS.

ALWAYS USED WHEN ONCE TRIED.

ONE YEAR FREE!

SEND US 10 CENTS to pay postage, and the names and addresses of five lady friends that you think would like sample copies of **"The Household Pilot,"** and we will mail it to you one year **FREE** of cost. A large 8 page, 40 column, Illustrated Household and Farm Journal, one of the best in existence. Now in its 13th year. Devoted to short and interesting stories, fancy work, fashions, horticultural, agricultural and everything of interest to the whole family. Large CASH PRIZES given away. Address **Pilot Publishing Co., New Haven, Ct.**

W. G. DEAN & SON,

361 and 363 Washington St.

The only firm ever awarded a Medal for the Best Spanish Licorice, by the American Institute Fair.

—ASK FOR—

Ardenter Mustard.

BEST FOR

TABLE AND SICK ROOM.

Manufactured by

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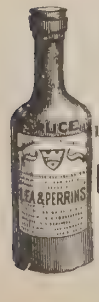
THE ORIGINAL AND GENUINE

(WORCESTERSHIRE SAUCE)

LEA & PERRINS' SAUCE



In consequence of Imitations calculated to deceive, we call attention to the fact that each bottle of the Original and Genuine WORCESTERSHIRE SAUCE bears our signature, thus:

Beware of Imitations; see that you get **Lea & Perrins'** Lea & Perrins

For sale in bottles only (not in bulk) by dealers throughout the world.

JOHN DUNCAN'S SONS, NEW YORK.

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The American Analyst, for the family,
Semi-monthly. 1st and 15th. $1.00 per year.

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of Pure Cod Liver Oil—Extract of Malt and Compound Syrup of Hypophosphites (Lime and Soda), is used by thousands of

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SAY it

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Ask your Druggist for it, and take no other.

MAGEE EMULSION CO., LAWRENCE, MASS. TORONTO, CANADA

5000 Agents Wanted Quickly
to supply the immense demand for
CONWELL'S LIFE OF SPURGEON,
500 Pages, Richly Illustrated, Price, $1.50.

A Biography of the World's Greatest Divine, by the **Spurgeon of America.** Beware of catchpenny books, this is the **standard.** Agents' success astonishing, interest **intense.** Send quick 30c. for outfit and get the territory.

Address **HUBBARD BROS.,**
406 Race St., Philadelphia,
or, **Broadway and Locust St ,**
St. Louis, Mo.

LADY AGENTS WANTED.

I have a medical specialty for ladies' use, which is one of the best selling articles in the country. You can make a good income handling it, and at the same time be doing your sex a great benefit. Write me at once for full information and exclusive territory. If you wish a sample sent enclose 12 cents postage.

DR. H. H. JACKSON, 103 State St., Chicago.

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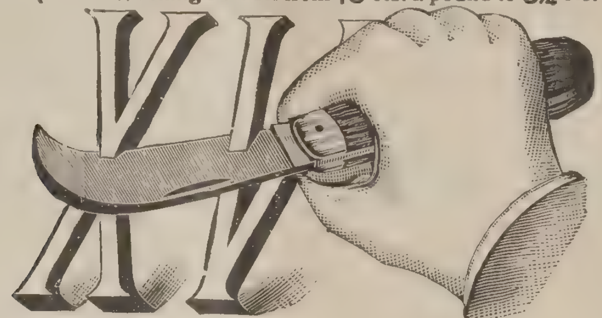

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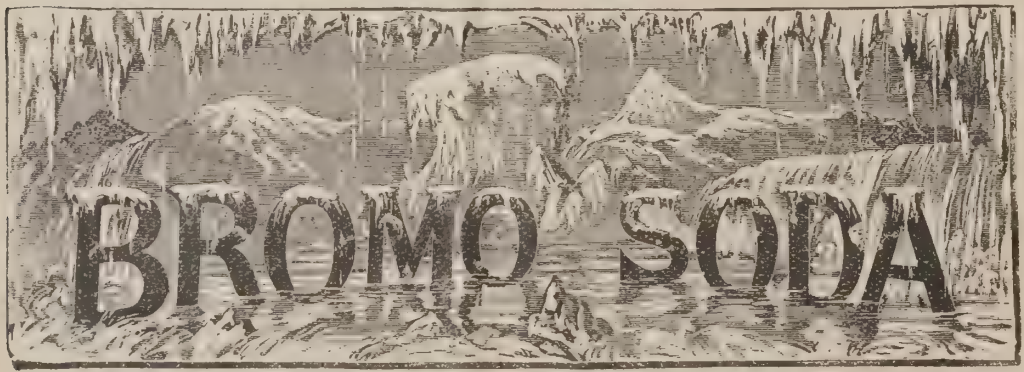

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CONTENTS.

Page
Artificial Feeding of Infants 173
Asparagus 172
Bright Stories 170
Dietetic Economies 172
Editorial 169
A Massachusetts Grab—A Hint to Analysts—A Mechanical Ballot Counter—Difference in Imported Sardines—Pure Food.
Epidemics 173
For and About Women 172
Household 172
Hygienic 174
Ladies' Kid Shoes 176
Make More of Rice 172
Medical 173
Miscellaneous 174
Needed Sleep 174
Suggested by the Weather 175

A MASSACHUSETTS GRAB.

BOSTON, April 18, 1892.

EDITOR OF THE AMERICAN ANALYST:

I have read with a great deal of interest your editorial in the number for April 15 headed "Is it fair?" I desire to make it known through you that from practical experience as a spice-salesman I have found the execution of the Massachusetts adulteration laws even worse than you have pictured them. Twenty-three years experience in spices enable me to be a fair judge of quality and I make the assertion boldly that the majority of spice manufacturers do not sell adulterated goods except where they are compelled to do so in meeting prices of competitors who supply and grocers who demand cheaper goods. After all it is just as you have often said—the public, the consumers, who demand cheap goods without regard to quality, are to blame for the lamentable condition of things and I do hope that your journal as well as the special organs of the grocery trade will eventually succeed in educating all parties concerned up to the idea of being willing to pay a fair price for pure goods. But it is not of the cheaper goods which I sell that I am now speaking but of the best and purest goods made. Formerly there was fair and honorable competition in this trade in Massachusetts. All this has been changed. The adulteration laws are now so carried out that it is almost impossible to sell pure goods in Massachusetts unless they bear the brand of one or two Boston houses. The inspectors apparently take it for granted that the label of these Boston houses is only put on pure goods and therefore these are never examined while great pains are taken to inform retail grocers that if they want to avoid trouble, they would do well to buy only these favorite Boston brands. As I happen to know that these spices sold under this brand are not as pure nor as good in quality as those I have to sell, I am aggravated and yet helpless. If the retail grocer finds that he escapes all trouble by buying these brands, he of course will not buy mine, so the jobber and wholesaler not having any demand for my goods refuse to give me any orders; consequently I have lost my trade in that State and am further injured by having these alleged facts spread broadcast in other New England and in New York and Western States. This dirty work is done anonymously but nevertheless has its effect. Other States where they have adulteration laws do not act in so discriminating a manner and there we secure more than our proportion of the trade in fair and open competition.

I am not prepared to say how these Boston houses manage it, I only know that it is done. I have sent you by Adams express some samples of these goods made by these favored manufacturers and openly sold in this State. Those I have examined as a spice expert are not pure and I hope you will have these samples, which you will see are in original sealed packages, analyzed to suit yourself. I do not ask you to advocate lax execution of adulteration laws but I would like to see you agitate an equitable and just carrying out of the law—all spice houses will favor this.

R. M.

The above communication is from a gentleman well known in the spice trade as a successful and honorable salesman and the charges he makes bear accordingly a virtual guarantee of authenticity. We make special note of this fact on account of the serious nature of those charges. The adulteration laws of Massachusetts, the enforcement of which is assigned to the State Board of Health, have been generally regarded as framed in wisdom and regulated by a spirit of equity and fairness. In fact, so high has been their reputation, and so acceptable their apparent construction that they have been adopted as the basis upon which several other States have framed their food laws and even our national legislators also have availed themselves of their provisions in preparing suggestions for the enactment of laws on the subject by Congress. But it has always been patent that in the wisest laws there are loop holes through which dishonesty can effect an entrance. We called attention in our last issue to the fact that the food inspectors of Massachusetts in their latest report found adulterations in those spices only that were manufactured in and introduced from other States. This in itself was a phenomenal discovery on the part of these inspectors. Our correspondent however furnishes a clue that may lead to its exploration; according to his statement the Massachusetts inspectors do not even take the trouble to examine spices made outside of that State, subjecting them thus, all alike, to the implication of impurity, while at the same time they tacitly, at least, encourage the assurance on the part of the merchants that by handling only goods made in that State they will keep themselves within the conditions the laws impose. We do not care to discuss the subject further without greater enlightenment. Our correspondent's charges are specific and direct, and it behooves the Massachusetts State Inspectors to explain them and, if they can, refute them. With all our confidence in the superiority of Yankee skill we still find no room for believing that the Bay State is the only section of the United States in which pure spices are manufactured. Still less are we able to account for the refusal of the salaried officials of that State to perform their duty in honesty to themselves and fairness to the public specially interested in their action.

A HINT TO ANALYSTS.

When mustard is sold at a price below the cost of mustard seed, and yet is labeled as pure mustard, and the learned gentlemen who analyze mustard for our various health boards cannot find any adulteration in it, we are puzzled to know how the various manufacturers who brag that their goods will pass inspection, and yet charge so low a price for their goods that we know that they cannot afford to give genuine mustard for the money, accomplish the juggling. Analysts look for starch, flour, shells, and other adulterants, all of which the manufacturers know will be looked for, and therefore avoid. Cabbage and turnip seeds look very much like mustard, but cost less than half as much. Let the analysts examine these two seeds under the microscope and then examine these "pure" mustards.

PURE FOOD.

This is more important than anything else, and will hereafter receive more attention than ever before. We have re-arranged our laboratory and employed additional help and shall go out in the open market to buy such brands of food products as are in most general use, have them carefully analyzed, and if any of them are found wanting in any essential particular, or differing from what is claimed for them on the labels, we will not hesitate to publish it.

DIFFERENCE IN IMPORTED SARDINES.

The new customs laws requiring the country of manufacture to be affixed to every article imported, is largely contributing to the suppression of fraud upon consumers. Under this law the consumer has only to carefully examine any imported article of merchandise and look for the label or stamp giving the name of the country whence that particular package came, and it will be impossible for a storekeeper to impose upon him, at least in this respect. If the consumer, for instance, wants French sardines, he need not be afraid that the grocer will foist Portuguese upon him. In addition, by purchasing French sardines the buyer has also the protection of the French laws which compel the packers to distinctly state upon the label whether the contents are sardines or other fish. Sardines only can be labelled *Sardines a l' huiles*; other fish must be labelled *Poissons a l' huiles*. There have, however, been lately imported some boxes labelled "*Sardines et autres poissons*," which is a circumvention of the law. If in addition to these safeguards thrown around him by the law, the consumer will demand well-known brands, he never need fear receiving second-grade goods. The Portuguese sardines are not quite as fine as the French, owing to the difference in the feeding grounds and also in the olive oil used, which, having been stored in pigskins, has a rank taste. There is also a considerable difference in the fish used, some packers always buying only the finest fish for packing, while others buy the inferior. In this the difference in the price paid by the packers for the fish sufficiently indicates the vast difference in the quality, as for instance, while the finest quality of the fresh sardine readily brings twenty francs per thousand, the inferior grades only bring as low as three francs. Buy only well-known brands, pay the price, and you will be sure of the best.

A MECHANICAL BALLOT COUNTER.

A Massachusetts genius, hailing from Worcester, and bearing the somewhat suggestive name of McTammany, is reported by the Boston *Transcript* to have invented a machine for counting, cancelling, recording and registering the Australian ballot. There has long been a suspicion here in New York that a great many of our voters are already little more than machines manipulated by the "bosses" and ward leaders. This other machine, however, does not seem to come in conflict with the human automatons, but is designed to simplify and expedite the ascertaining of election results, and incidentally to ensure honest counting of the ballots in behalf of the candidates for whom they were voted. Possibly under the present dispensation this latter quality may operate to retard the general adoption of the instrument by the statesmen who hold the political management of our large cities in their grasp, but to the average citizen who is seeking nothing for himself beyond the boon of honest government of the people by the people, the advantages it promises would seem to be substantial benefits. According to the *Transcript* the ballot required for this machine differs from the present official ballot merely in the fact that it is made of heavier material and is perforated, where formerly the voter made his mark with a pencil. The perforating is done by a small mounted punching lever. When the voter has punched his ballot opposite the name of a candidate the piece drops down into a secret receptacle in the booth. This punched piece contains a letter indicating the party and a number representing the office. These punched pieces, or coupons, are sorted either during the process of voting or after the polls have closed, and the result then determined. When the voter has prepared his ballot, instead of carrying it to the ballot box as formerly, he simply drops it into a slot in the top of the booth, where it remains exposed to the view of the election officers until the next voter enters the booth, when it disappears to make room for the next ballot While the ballot is exposed to the view of the election officers only that part of it is seen that is not punched, thus preserving the absolute secrecy of the ballot. When the election is closed the ballots are taken out of the booths and put through a counting machine which records on a tally sheet the votes cast for each candidate. The celerity of the work is such that the work of counting 1,000 ballots can be done in an hour by one man. If a voter is challenged he is handed what to all appearances is a regular ballot, but when he has marked it, it separates into two ballots, one of which he deposits in the booth and is counted, the other he places in an envelope which he seals and hands to the clerk who retains it subject to future litigation. If no further action is taken, the envelope is mailed to the voter unopened by the clerk, and no one can tell how the man voted.

BRIGHT STORIES.

A CIRCUIT SCANDAL.

THE THEFT OF THE DIAMOND CROSS, AND WHAT RESULTED.

Why Arthur Hisluck went to the bar was a mystery. Probably if he had tried he could not have chosen a profession for which he was less fitted, or which was less to his taste. A gentle, retiring, morbidly sensitive young fellow, who blushes when he is spoken to, and who shrinks with horror from the very thought of appearing in public, is not exactly the sort of person calculated to succeed as a barrister, nor is he likely even to enjoy the boisterous, noisy, struggling life which barristers are compelled to lead.

Why, having gone to the bar, Arthur Hisluck joined the Doltshire Circuit was a further and still deeper mystery. In the first place, he had not a single friend among the barristers on the Circuit; in the second place, he had not a single acquaintance among the solicitors on the Circuit, and in the third place, he had not a single connection among the public on the Circuit. Perhaps he knew few people out of London, but it was next to impossible that there was not some part of provincial England where he was not quite so utterly friendless as he was in the shires which formed the Doltshire Circuit

It cannot be said that the members of the Doltshire Circuit mess took kindly to Arthur Hisluck. They considered themselves a smart set. They were all sons of the country gentry, or of attorneys, brewers, or wealthy pawnbrokers of the district; at any rate, they all had local connections of one sort or another; and the intrusion of one utterly friendless was distasteful to them. Moreover, the circumstance made them suspicious of him. Why did he come where he was absolutely unknown? Was it because he was equally unknown elsewhere, or was it because he did not want to go where he was known? These were questions which were discussed privately a good deal, and not a few of the bar agreed with the view entertained and expressed by Mr. Herman-Potts, the bully of the mess, that the whole thing looked deuced shady.

It must be admitted that Arthur Hisluck's own conduct did not tend to dissipate the suspicions of his fellow barristers. The young man was, as has already been said, of a shy and retiring temperament; he kept himself very much to himself; he vouchsafed no information to the mess as to his parentage or position; neither did he join in the somewhat rough joviality which prevailed in the evening. After dining with the Circuit he quietly withdrew, and going to his own room, spent there the hours which the other members were devoting to cards, port, and hilarity. This behavior was so unprecedented, and seemed to the mess so unnatural, that it raised a cloud of prejudice against him, and did much to confirm the suspicions which his friendlessness had aroused.

Hisluck joined in the Circuit at Mudford; there he was not liked. He went on with it to Rottenborough; there he was more or less cut. When he reached Snobton the feeling against him was so pronounced that Herman-Potts felt safe in insulting him at the dinner table. This was too much for Tom Brightley. Tom was a kindly fellow, and though he knew nothing about Hisluck, and was more or less under the general prejudice against him, still he resented Herman-Potts' behavior towards the friendless junior. He took Hisluck's part, and told the bully that his conduct was not creditable either to himself or to the mess who tolerated it. Herman-Potts, who, like most bullies, was a coward, mumbled some excuse, and inwardly vowed to take it out of Hisluck and Brightley yet.

The very next day a strange thing happened. Herman-Potts was a very showy dresser, and, like most showy dressers, was also very fond of jewelry. On his hands were several valuable diamond and emerald rings, and over his waistcoat hung a heavy watch-chain from the end of which dangled a beautiful diamond cross of Roman workmanship. Potts was very fond of this cross, which, as he said, besides being of great intrinsic value, was a curiosity on account of its rare construction. Well, it happened on the day in question. When Potts was leaving the court house, to his surprise and consternation, he discovered that the ring which connected this cross to his chain had been cut almost completely through. Evidently an attempt had been made to steal it, and had been very nearly successful. A very slight pressure completed the severance of the ring, and Mr. Potts, taking the cross off, put it carefully in his waistcoat pocket, thanking heaven for its preservation.

A few minutes later Mr. Herman-Potts came into the mess-room. Of course he was full to overflowing of the felonious attempt that had been made upon his diamond cross. As he ate his soup he talked loudly of the narrow escape he had had, and wondered vastly who the thief was and how he could get at his watch-chain.

"You see," he said, "I was not out of the bar-seats all day, except when I went to the robing-room at lunch. Now the thief must have been among the general public, and you know there's a barrier between their seats and ours. How any man could reach over the barrier, around me, cut my watch-chain without either me or any one else seeing him is more than I can understand."

"He must have cut it when you were pushing through the crowd to the robing-room," suggested some one.

"No, it could not have been then," argued Potts, "because I went out through the bar-door."

"But the bar-door was crowded," was the reply.

"Yes, but only by solicitors."

"How do you know?" queried Tom Brightley, with a laugh. "He would be a 'cute fellow who could distinguish at a glance between a solicitor and a thief."

There was a general titter around the table at this sally.

"Have you the violated cross with you?" some one then asked Potts.

"Yes, I told you I didn't lose it."

"Let us see the article."

Potts took it out of his pocket, and handed it to the person desiring to see it. This gentleman was greatly struck with its peculiar workmanship, and made some remarks to that effect. Several other members of the mess thereupon asked to see it, and the jewel was handed to the nearest of them. This one passed it on to the next, and he to the next, and so it began making the circuit of the table. Meanwhile Mr. Borman, who posed as an authority on jewels and jewelers' work, as he did on almost every other topic, entered upon a long discourse upon the peculiarity of the workmanship displayed in the cross, which he described as unique in character; he himself having only once before seen one similar.

How long Mr. Borman went on it would be hard to say, but, when he finished, the cheese was on the table.

“Well,” Herman-Potts then said, “now that we have heard about all the different schools of Italian, Flemish, French and German jewelers, perhaps the person who has possession of my cross will hand me it.”

There was a pause. Nobody handed him the jewel.

“Who has got it?” demanded Potts, a little impatiently. “No jokes now.”

“Really, I don't know,” said one; “I gave it to Barassis.”

“And I gave it to Kidd,” said Barassis, Q. C.

“And I gave it to Brown,” said Kidd.

“And I gave it to Hisluck,” said Brown.

“And I gave it to—Mr. Brightley,” said Hisluck.

“And—and—did I not return it to you?” Brightley asked Potts.

“You certainly did not,” replied Potts.

“That's queer,” said Brightley, a little bit startled. “I remember looking at it, but what I did with it afterwards I'm blest if I know.”

“Perhaps you put it into your pocket?” suggested Kidd.

Two or three of the barristers laughed.

“This is no laughing matter,” snarled Potts, angrily. “I want to know where the cross is.”

“I think I remember after looking at it, laying it down on the table here,” said Brightley, and he pointed to a spot on the table, between himself and Hisluck. Hisluck had that night taken his seat next to his protector.

“Well, it's not there now,” answered Potts.

“Perhaps it has fallen on the floor,” suggested some one.

A search was thereupon made, but without result.

“This is very awkward,” said Brightley, with evident annoyance.

“It is,” was Potts' reply.

“You have no idea where it went to?” Brightley asked Hisluck.

“No, no,” answered Hisluck, hastily, at the same time turning very red.

“Of course not,” sneered Potts, “just as little as you.”

“What do you mean?” demanded Brightley, angrily.

“Oh, nothing,” replied Potts, “only that between you and your friend the cross has disappeared.”

“Look here, Potts,” said Brightley, “if you think I have your confounded trinket you can search me this minute.”

“Don't talk nonsense, Tom,” cried Barassis, who was leader of the circuit, “we haven't come down to that yet.”

“Well, then, let Potts make no more insinuations,” answered Tom Brightley.

“I made no insinuations,” said Potts, “I merely stated a fact, namely, that between you and Hisluck the cross has disappeared, and look you, between you you'll have to find it again.”

Tom Brightley stared at Potts for some minutes in speechless passion. When he was able to speak he said: “I insist on being searched. After such a statement there is no other course open. I'm sure Hisluck will do the same.”

Hisluck remained silent. Brightley looked at him in surprise. The other barristers exchanged significant glances.

“You'll consent to be searched too, won't you, Hisluck?” demanded Brightley.

Hisluck did not answer for a moment. Then with a face deadly pale, he answered hesitatingly, “I—I would rather not.”

Tom Brightley stood petrified with amazement and horror. The rest of the mess maintained a dead silence.

The first to speak was Barassis, Q. C.

“Mr Hisluck,” he said, speaking deliberately and solemnly, “are the mess to understand that a diamond cross having been lost in the room you decline to be searched?”

“No, no, not that,” replied Hisluck in painful confusion, “but I would rather not, because—because”— And again he hesitated.

“Because what?” demanded Barassis sternly.

“Because—well, the fact is I have an exactly similar cross in my purse at this moment!”

A murmur of amazement followed this startling declaration, and significant glances were exchanged between the barristers.

“Please produce this cross,” said Barassis.

After a little nervous fumbling, Hisluck brought out his purse, and from it he took the cross. It was identical in size and construction with the missing one.

Barassis took it in his hand, and examined it carefully. Then he handed it to Herman-Potts.

“Is that your cross?” he asked.

Herman-Potts scrutinized it for a moment.

“It is,” he answered.

“You're mistaken—I assure you, you're mistaken,” cried Hisluck, trembling all over. “It's very like it, but it's not yours. I have had it for years.”

“It's mine, I'll swear it,” was Potts' answer.

There was a dead silence in the room for a moment. Potts again spoke.

“Now that I think of it,” he said, “this person,” pointing to Hisluck, “was seated next to me in court when my chain was cut. You can draw your own conclusion from that, gentlemen.”

Again significant looks were exchanged between the barristers.

“You say you have had this cross for years,’ Tom Brightley then said to Hisluck. “How and where did you get it?”

“It was given me,” answered Hisluck, in a weak voice, “by my old nurse in Italy. I was brought up in Italy, where my mother has to live on account of her health.”

“Given you by your old nurse!” repeated Tom Brightley, incredulously, while a look of unspeakable contempt settled on Potts' face. “A diamond cross given you by your old nurse!”

“It isn't diamond, it's only paste,” gasped out Hisluck, desperately. “That's the reason I took it from my chain when I joined Circuit. I used to wear it as Potts did his.”

“Is yours real?” Brightley asked Potts.

“Of course it is,” answered Potts, indignantly.

“I think, Mr. Leader,” Brightley then said, addressing Barassis, Q. C., “I think we see light at last. Hisluck says his cross is paste, Potts says his cross was real diamonds. Now, we can easily decide the point by having this cross tested. If it's paste, clearly it can't be Potts'; and if it's diamond, clearly it must be.”

“Yes, yes,” chorused the jurors, “let it be tested.”

“It's only prolonging the agony,” cried Potts. “That cross is mine, I'll swear, and it's genuine, too.”

“I should certainly say it is,” said Borman, “and I think I can tell the difference between stone and paste.”

“Besides, if it's paste,” argued Potts, “why was he afraid to produce it?”

“Because I thought yours was paste, too,” replied Hisluck, whose courage had plucked up a bit.

“Bosh!” answered Potts, roughly, “That cross is the real article—any fool can see that and it's mine and I demand it back this instant.”

“Well, you certainly won't get it back till it has been tested,” replied Tom Brightley, firmly.

“Then I'll go and give information of the theft to the police,” said Potts, rising.

“Sit down, man,” cried Barassis, Q. C., angrily. “This matter must be settled here, and not in a police court. We'll have no public scandals over our mess.”

“Hear, hear!” shouted the jurors.

“The course proposed by Brightley is obviously the right one,” the leader went on. “The whole question turns upon the fact of this cross being or not being genuine. It can be settled by submitting it to an expert. I therefore order the Circuit junior to submit it to-morrow to Messrs. Selstones, the jewelers, and report to the mess to-morrow night.”

“Hear, hear,” the barristers again cried.

“I don't see the use of it,” said Potts, doggedly. “The cross is mine, and I'll not sit in the same room with the man who stole it.” And he rose from his chair.

“Perhaps”— — said the leader, visibly annoyed, “perhaps both Potts and Hisluck had better withdraw till this point is settled.”

Great was the excitement among the members of the mess from that moment till dinner hour the next day. Nothing was talked of, nothing was thought of, but the great question, Was or was not the cross found on Hisluck real? Owing to Potts' overbearing conduct in the matter, a feeling in favor of Hisluck was springing up. Of course, if the jewelers announced that the cross was genuine, Hisluck must be at once expelled from the mess; but in case they found otherwise, it was felt that Potts should not be allowed to go entirely unpunished. But how he could be fitly punished nobody could suggest.

The circuit junior in the morning took the cross found on Hisluck to the Messrs. Selstones, and directed them to test it carefully and return it to him with a sealed letter containing the result of their tests. He arranged with the leader that both Hisluck and Potts should be directed to be present that evening at dinner hour, and that before dinner a Grand Circuit Court should be held, at which the letter should be opened, and the jewelers' decision read.

Before 7 o'clock—the mess hour on the Doltshire Circuit—the mess room was crowded. The greatest excitement prevailed. At 7 punctually, Potts and Hisluck arrived. Hisluck was accompanied by Tom Brightley, who apparently had espoused his cause.

A minute later the circuit junior handed Messrs. Selstones' letter to Barassis. As calmly as possible he broke the seal, and read the note:

“The accompanying Roman cross has been thoroughly tested by us, and we declare it is paste, though a paste of an exceedingly high-class description.”

A rousing cheer went up from the assembled mess. Potts' face was a picture of rage and disgust.

“Well, Potts,” inquired Tom Brightley when comparative silence was restored, “what do you say now? Do you still maintain the cross is yours?”

“I do,” answered Potts, angrily. “The opinion of Selstones is all humbug. They have been bribed to give it, or they don't know their business. The cross is mine: I'll swear it!”

“Very well,” said Tom Brightley, quietly, “if it's yours, take it and keep it. Hisluck doesn't object.”

Amidst general astonishment, the cross was handed to Potts.

“Now, butler,” said Tom, “call in Sergeant Gripper.”

There was breathless excitement as the sergeant stepped into the room. What did it all mean?

"Tell your story, sargeant," said Tom.

"Begging your pardons, gentlemen," said the sergeant, awkwardly, awed by the presence of so many limbs of the law; "begging your pardons, gentlemen, this arternoon Mr. Bolls, the pawnbroker,called me in about a harticle which Jones, a hoccasional waiter 'ere, was a trying to pledge with 'im. I harrested Jones and questioned him where he found the gem, and he said he got it in a napkin as was brought from this room last night, and he couldn't restrain himself from keeping it. Here it is, gentlemen—a valuable thing, Mr. Bolls says. I wants to know to which of you it belongs."

Before the company could recover its breath, Tom Brightley spoke:

"Mr. Junior," he said, "both Hisluck and Potts had crosses of this description Potts has got the one he says is his. Clearly this one must be Hisluck's."

"Hear, hear!" shouted the barristers, in delight at Potts' discomfiture. "Of course, it must be Hisluck's."

"Ah, Hisluck," said Tom, as the cross was handed to the young fellow, "you needn't be ashamed to wear your cross now. Whatever you may have thought it was, there's no doubt now but that it is real."—*London Truth.*

HOUSEHOLD.

DIETETIC ECONOMIES.

BY DAVID A. CURTIS.

Considering that more than one-half of the earnings of mankind go for the purchase of food, and that lessening the cost of the table means increasing the sum available for the other comforts and luxuries of life, it is not surprising that a thoughtful man like Edward Atkinson should desire for an epitaph the simple sentence: "He taught the people how to stew." For the true economy of catering is not to lessen the nutritive value of the diet, nor yet to neglect the pleasing of the palate, but it is to so utilize the food that is purchased, as to obtain the greatest amount of nutrition, and at the same time the greatest enjoyment.

This is a field in which women are far better adapted to succeed than are men. It is conceded generally, that while men are more artistic and capable cooks than women, they are at the same time more wasteful. The reasons for this probably lie far afield. If circumstances were equal, there might not be this difference between the sexes. Existing circumstances, however, are those which have to be considered, and in the great majority of households the management of the table lies in feminine hands.

It is for women to learn how this economy is best practiced, and it is hard to say anything in urging the proposition, that has not been said again and again, for economy has been preached ad nauseum, and many wholesome truths have been repeated in most unpalatable form till many sensible people have tired of the subject and go on with scant regard to the teaching. "Cheese-paring is not economy," they say, "and if wisdom consists in the eternal consideration of petty details, let us rather be foolish."

It is true, Mesdames, that cheese-paring is not economy, and that life were not worth living were it spent in the study of detail. Yet details must be studied at first in order to accomplish any results whatever. Moreover, it may not be forgotten that catering is a matter of details, and that these must be mastered in some fashion before one can provide for any household. If, then, they be understood clearly in the beginning, a wise and economical administration of the household will follow. If they be not understood, economy will never obtain, though cheese-paring may.

It is well understood, or it should be, that discretion in buying and skill in cooking are both vital to true economy. The woman who should go to a dry-goods store, and without specifying what particular kind of cloth she wanted, direct the salesman to give her enough of the best woolen goods for a dress, and who should then hand the material over to her dressmaker with instructions merely to make it well and trim it becomingly, might, or might not, be well dressed. It is fairly certain that she would not be economically dressed. Yet thousands of women give orders after precisely this fashion to their butchers and cooks, and are then despondent because their bills are so large.

It is a primary duty of the housekeeper to understand the relative values of goods, and to know how they should be cooked to preserve those values. If the most expensive viands are desired, all right. Let them be so prepared that they shall justify their cost. They do not necessarily traverse the principles of true economy. But the most expensive viands, while they are likely to be the best for their particular purposes, are entirely out of place in the preparation of other equally valuable and equally toothsome dishes. Their use then becomes gross extravagance. If the housekeeper knows the character of each article of food that is bought, and devotes each to its proper use, she has mastered the great principle of dietetic economy.

MAKE MORE OF RICE.

Dealers in rice would greatly increase the consumption of this food, if through the food expositions, or in other ways, they would show the American people in how many ways rice may be prepared for use. Wheat is our great cereal and it enters into thousands of toothsome and delicious articles of food. Rice is generally prepared in only half a dozen different ways by English speaking peoples. It is, however, an elegant substitute for potatoes, with fowl, fish and meats, and in India is made into the most delicate cakes and articles of confectionery. It is the staple food of hundreds of millions of the human race, and a little popular education as to its capabilities and value as a food would soon double its consumption in this country.

ASPARAGUS.

HOW TO COOK IT.

Of all the succulent herbs a fine dish of asparagus cooked to a nicety, seasoned to a charm and spiced by a good appetite, is fit for the gods. It is more, it is healthful, but not especially nutritious; it forms one of the most valuable of vegetable luxuries.

The plant has been brought to perfection by sensible cultivation; it is a native of Southern Europe and found growing wild along the shores of Italy, Greece and Turkey.

Asparagus is a great favorite in London, where it is consumed in large quantities.

The following is subjected to us by an authority, one of the chefs in a widely-reputed restaurant:

The bunch should be plunged into boiling water, which should be well salted, set down on the root end, with the tips well out of the water, as the steam cooks them quite sufficiently; almost any asparagus will be well cooked after twenty-five minutes' boiling. It can then be put into a collander and drained, the strings carefully cut and the vegetable arranged on toast to serve. Several sauces are used with it, either plain butter, pepper and salt, à la Hollandaise, or drawn butter be poured over it. Sometimes when the tips of the asparagus are served with toast as an especially great dainty, the stalks are well boiled and strained for soup; this makes a delicious soup, more so when cream is added. Asparagus can be steamed to warm it over, cut in small bits and stirred into an omelette, if any happens to be left over.

CHICKEN CROQUETTES.—Cover a chicken with hot water and boil it until it is tender; let it cool in the water, then remove the flesh from the bones and chop it fine. Put some of the liquor in which it was boiled in a pan with a lump of butter the size of an egg; thicken it to the consistency of drawn butter with flour rubbed smooth in a little water; season highly with salt, black and red pepper, chopped parsley and onion juice; add the minced chicken; pour out on a plate and when cold form into croquettes, dip them in beaten egg and bread crumbs and fry to a light brown in boiling lard.

SALAD DRESSING OF CREAM.—Beat up two eggs, add to them a teaspoonful of sugar, a quarter of a teaspoonful of mustard, a teaspoonful of salt and three tablespoonfuls of vinegar, beat up and then add a tablespoonful of very thick cream. Set the bowl containing this mixture in a pan of boiling water and beat constantly until the dressing is smooth and thick. Let it cool, then use.

LEMON SAUCE.—Put one cupful of sugar, one-half cupful of water, the rind and juice of two lemons, in a saucepan and boil for a quarter of an hour. Beat up the yelks of three eggs, and add them, beating all the time to the syrup. Beat very constantly for a few minutes, then it is ready.

FOR AND ABOUT WOMEN.

Lady Londonderry spends one day in ten in bed for beauty's sake.

A German countess is the cook in a New York restaurant kitchen.

It is said that the best Welsh scholar living is an Englishwoman, Mrs. Ann Walter Thomas.

There is a young woman in Minneapolis who has contrived to amaze her friends by boasting that a New York sculptor was making a bust of her foot.

Any lingering scepticism as to the insanity of the notorious Diss Debar must surely be dispelled by the report that she tried to kiss a Chicago editor.

It was a musical critic in Idaho, who, in speaking of a prima donna in an opera company, said that her singing resembled a gas pipe laid in the wrong street. Picturesque if not technical.

Now that the girls are to be able to propose when and as often as they please, the unprotected bachelors want to know if they can seek restitution in breach of promise suits, in case the necessity may arise.

No photograph can do Ethel Ingalls, the daughter of ex-Senator Ingalls, justice, says John Mallory in an interesting sketch of Miss Ingalls, for it is to her exquisite coloring that much of her beauty is due. She is tall, well proportioned and erect, with fine figure, and small beautifully-shaped hands and feet.

MEDICAL.

ARTIFICIAL FEEDING OF INFANTS.

BY WM. A. TREMAINE, M. D , PROVIDENCE, R. I.

[Read before the Providence Medical Association, February, 1892.]

Artificial feeding of infants demands our serious consideration. We have, as Dr. Meigs puts it, two ways of artificial feeding, one empiric, the other scientific, and the physician is compelled every day to choose between the two. If he follows the first method there is a wide latitude, with a possible hope of favorable result at the end. Scientifically considered, it is desirable to approximate the composition of human milk.

As the nursing baby takes the milk from its mother it is germ free. This result is easily obtainable. Much more stress has been laid upon the method of sterilization than the preparation of the milk, and we have often left out of sight what is certainly of as much importance as the simple steaming. Milk sterilization is certainly becoming a recognized principle. The method of steaming is probably so familiar to us all that it needs but passing mention. It has been claimed by some writers, that the milk during this process becomes "devitalized," but how this rather vague claim can be established is uncertain. Up to the present date probably the most reliable analyses of mother's milk are those quoted by Rotch in *Keating's Encyclopedia*, of Forrester, Meigs Harrington and others. In these tables as a mean result the albuminoids are just at 1 per cent, or possibly at one and two-tenths of 1 per cent. Dr. Meigs stated nearly ten years ago that human milk never varied much from 1 per cent of albuminoids, and that he has never seen any reason to recede from this statement. Many other analyses have been made placing the percentage at a much higher rate, but according to the best authorities these analyses are unreliable. In cow's milk albuminoids range from 3 to 4 per cent. Without dispute cow's milk then needs dilution in order to approximate the amount of albuminoids in breast milk. It makes but little difference what the diluent is, providing the dilution is accomplished. Water, barley water, lime water can be used indifferently as regards the formation of the curd.

Mothers' milk is slightly alkaline; cow's milk is slightly acid, and personal experience has taught me that the degree of acidity varies much. Between Meigs, Keating and Rotch there has been much difference of opinion as to the means to be used for changing this normal cow's milk to resemble the slightly alkaline mother's milk. Dr. Rotch used only $\frac{1}{16}$ lime water of the total volume to accomplish this result. Meigs recommends $\frac{1}{4}$ of the total volume, and says his clinical experience will bear him out in his statement. Keating very justly remarks that when you consider that in a pint of lime water there are only 11 grains of lime, then two tablespoonfuls would only contain about one-third of a grain. Can this be sufficient to correct undue acidity or to supply lime to the tissues? Roughly stated, Keating's plan is to add to the milk bicarbonate of soda and potash with chloride of sodium in the form of a tablet, the whole to be afterwards steamed. Rotch recommends steaming the mixture first, and adding the lime water.

Does this procedure carry out the principle of antisepsis? We practically add to a supposed sterile fluid a certain quantity of liquid which may have been exposed to the atmosphere for an indefinite time.

The lime water cannot be added before steaming, because the temperature of 212 deg. F. would precipitate the lime. When it is added before steaming, the milk will often turn a light brown or reddish color. This result I have obtained myself where the directions were not perfectly followed. Dr. Harrington explains this as the action of the lime water upon milk sugar at the steaming temperature. He adds, however, that at the beginning there is a slight alkalinity which disappears entirely at the end of the operation, so that the mixture is rendered sterile but not alkaline. Keating mentions some very interesting experiments regarding the effect of lacto-phosphate of lime on the curd of cow's milk. Briefly stated, he added hydrochloric acid to two portions milk: one containing $\frac{1}{2}$ grain of lacto-phosphate of lime, and the other nothing but the pure milk.

In the first case the resulting curd was smooth and creamy, and in the second case, it was lumpy and irregular. Repeating these tests my experience was unsatisfactory until the cause of failure became evident. Fresh morning's milk tested immediately showed corresponding results, while milk which had been standing all day, and was perceptibly acid, showed but little difference in the curd. This seems to emphasize the caution to sterilize as soon as possible after milking. The source of the milk, as we know, is of vital importance. Cows fed on brewery grain or silo will yield milk much more acid than those fed in the ordinary way.

One writer gravely remarks that filtered water is used ordinarily in the preparation of lime water, not boiled or distilled water. My experience is that with most apothecaries in this city aqua Pawtuxensis is used to answer all requirements. (Pawtuxet River water is our only supply, and decidedly not germ free.)

Brush, in the *New England Medical Monthly*, questions the use of commercial sugar of milk, and says that one of the faults of the physiological chemist is that he makes no distinction between a substance existing in a natural condition and that substance eliminated and isolated by chemical means. Thus the sugar of milk of commerce and the sugar of milk as it exists in that fluid are regarded by chemists as one and the same thing. This he thinks is not the truth. The sugar of milk in that fluid is all assimilated while the milk sugar of commerce, when added to baby food, is eliminated both by the kidneys and the bowels. He says he never found sugar present in the urine or fæces of nursing babies, but in three cases of infants fed with mixtures containing commercial milk sugar, as recommended in Meigs' mixture, he always found sugar in the urine and fæces by Keating's test. He suggested a return to the use of cane sugar. Meigs uses $17\frac{3}{8}$ drachms to eight ounces of the mixture. It would seem as if the amount in Meigs' mixture was rather excessive, but up to the present date the use of milk sugar seems to be the most reliable.

Regarding the fatty matter, the average is about 4 per cent both in cow's and mother's milk. After dilution the proportion of fat in cow's milk becomes diminished. This proportion must be restored by the addition of some fatty matter, preferably cream. The cream from fancy cattle, Ayrshire or Alderney, is apt to be too rich in fats. The ordinary mixed herd milk is not so apt to vary in percentage. The centrifugal cream of which Dr. Rotch speaks (20 per cent fat, diluted $\frac{1}{4}$ or $\frac{1}{3}$) is probably available only in the larger cities. Frowlowsky has shown that the activity of the stomach's growth is very great in the first quarter of the first year, very slight in the second quarter, and moderate in the last half of the year. The weight of the child seems to be of more importance in calculating the requisite amount of food necessary, rather than the age. One-hundredth of the natal weight plus 1 gramme for each succeeding day for the first month is the rule suggested from the investigations at the Children's Hospital in St. Petersburg, and seems to be recommended by most writers on this subject. Thus for a baby weighing $7\frac{1}{2}$ pounds you would give one ounce of food and add 15 grains for each succeeeding day during the first month. From this basis Rotch devises a schedule giving amounts and intervals of feeding for ages from birth up to ten months. This schedule is subject to great variation. Dr. Rotch cites a case under his care of an infant for six weeks whose general development and weight corresponded to one of twelve weeks, so that it was evident that two ounces of food, the usual allowance of food so far as the age was concerned, was not enough, and its weight indicated a gastric capacity of four ounces which it took and digested easily. In institutions, sterilization of milk has gained great credit. In private practice it is not always so easy to bring mothers to a proper understanding of its value and importance. In the first case the patients are under absolute control. Exposure of the milk at the continued high temperature certainly renders it safe as regards germs, thus far we accomplish a great deal. My individual experience has taught me that preparation of the mixture itself as regards alkalinity and tissue formation is equally as important.

EPIDEMICS.

INFLUENZA DUE TO DUST.

At a recent meeting of the Royal Meteorological Society, a paper on the untenability of an atmospheric hypothesis of epidemics was read by the Hon. Rollo Russell. The author is of opinion that no kind of epidemic or plague is conveyed by the general atmosphere, but that all epidemics are caused by human conditions and communications capable of control. In this paper he investigates the manner of the propagation of influenza, and gives the dates of the outbreaks in 1890 at a large number of islands and other places in various parts of the world. Mr. Russell says that there is no definite or known atmospheric quality or movement on which the hypothesis of atmospheric conveyance can rest, and when closely approached it is found to be no more available than a phantom. Neither upper nor lower currents have taken a year to cross Europe from east to west, or adjusted their progress to the varying rate of human intercourse. Like other maladies of high infective capacity, influenza has spread most easily, other things being equal, in cold calm weather, when ventilation in houses and railway cars is at a minimum, and when, perhaps, the breathing organs are most open to attack. But large and rapid communications seem to be of much more importance than mere climatic conditions. Across frozen and snow covered countries and tropical regions it is conveyed at a speed corresponding, not with the movements of the atmosphere, but with the movements of population and merchandise. Its indifference to soil and air, apart from human habits depending on these, seems to eliminate all considerations of all outside natural surroundings, and to leave only personal infectiveness, with all which this implies of subtile transmissions, to account for this propagation.—The origin of influenza epidemics was discussed by Mr. H. Harries. The author has made an investigation into the facts connected with the great eruption of Krakatoa in 1883, and the atmospheric phenomena which were the direct outcome of that catastrophe. He has come to the conclusion that the dust derived from the interior of the earth may be considered the principal factor concerned in the propagation of the recent influenza epidemics, and that, as this volcanic dust invaded the lower levels of the atmosphere, so a peculiar form of sickness assailed man and beast.

A Simple Relief for Lung Troubles.—It has long been known that pine needle pillows would alleviate persons afflicted with lung troubles, and a Florida editor relates an incident in support of the fact as follows: During a visit to the home of a most estimable lady living on Indian River, this editor was told of a discovery that had been made which may prove a boon to sufferers from lung or bronchial troubles. The lady having heard that there was peculiar virtue in a pillow made from pine straw, and having none of that material at hand, made one from fine soft pine shavings, and had the pleasure of noting immediate benefit. Soon all the members of the household had pine shavings pillows, and it was noticed that all coughs, asthmatic or bronchial troubles abated at once after sleeping a few nights on these pillows. An invalid suffering with lung trouble derived much benefit from sleeping upon a mattress made from pine shavings. The material is cheap, and the *Christian at Work* says it makes a very pleasant and comfortable mattress, the odor of the pine permeating the whole room and absorbing or dispelling all unpleasant odors.

Important in Baby-Feeding.—The following valuable suggestions are gathered from a society discussion reported in the *Medical Advance:* Dr. Wesselhœft: A very important thing is the way the milk goes down into the child's stomach. The bottles are so constructed that the milk goes down too fast. Every child who sucks at the breast has to work for what it gets. One of the great troubles in artificial feeding is, the milk is cascaded into the stomach and immediately cascaded back again. Most of the sick babies are made so by some prepared stuff being cascaded into their stomachs in enormous quantities. Quantity is a great element in these disorders and I have known too much food to make babies sick, even where the food was perfectly fresh milk. Dr. Bigler: I generally tell the mother to put a piece of pure, clean sponge into the nipple, so that the child must work with its gums and lips to draw the milk, and thus obviate the too rapid flow.

A Powerful Digestive Ferment is prepared by M. Mussi, from the milk exuding from the leaves and twigs of the fig tree, which he calls cradine. It is said to act upon albuminoids, in presence of hydrochloric acid, much more energetically than pepsin, and even in alkaline media. After digestion, the liquids are easily shown to contain much peptone. It has no action on hydrocarbons. Its action on fats has not yet been studied.—*Jour. d' Med. etc.*

Adulterated Laudanum.—The arrest of the two wholesale druggists in Philadelphia, last week, for selling adulterated laudanum, is the beginning of an organized crusade on the part of the Pennsylvania State Pharmaceutical Society against the sale of impure drugs. The evidence against the two firms was apparently sufficient to warrant their being held under bail, and evidence has been secured against several other dealers.

Lettuce is said to contain a minute amount of hyoscyamine, and this gives to the plant its feeble soporific properties.—*Ex.*

HYGIENIC.

NEEDED SLEEP.

That the amount of sleep required by different individuals is decidedly different has almost passed into an axiom. Persons who are very energetic naturally require a great deal of sleep, and children and young people who are growing require at least nine or ten hours of sleep. Invalids or people advanced in life should sleep as long as they can, as there is no restorer of tired nature like sleep. To get a refreshing sleep the brain must cease to act. It would be curious to trace how many cases of irritability, or of functional diseases of the nerves, are due to lack of proper sleep. Little children should literally go to bed with the chickens. They should have an early supper, at half-past five, and be put to bed directly after. This should be kept up till the child is seven or eight years old, when the bed time hour may be changed from 5 o'clock till 7. A growing girl should certainly go to bed as early as 8 o'clock. The old Norman law which commanded that all fires should be covered and lights put out at the ringing of the curfew bell, though looked upon as a tyrannical measure, was, from a hygienic point of view, a wise one. Considerable harm has been done by arbitrary rules in the matter of sleep. The fact that Napoleon was able to exist with six hours' sleep, if it were true, proves nothing but his exceptional endurance. It is said that General Grant once said that he could do nothing without nine hours' sleep.

There has been considerable discussion as to what is the best position in sleep. Most physicians will tell you that you should lay on the right side, but no definite directions can be given. A weakness of the lungs may cause the sleeper to rest more comfortably on the left side. Again in depressing illness, the patient usually lies on the flat of his back, and this position seems, in general, to contribute the greatest amount of rest to the muscles, yet few people would find it a comfortable one. A position which has been advocated with considerable show of reason, is that of lying partly on the face. Probably no healthful person sleeps altogether in either one of them, but varies his position during his resting hours.

The best bed coverings are light woolen blakets. The impervious cotton comfortables so much used are the most unwholesome of any covering. A hair mattress is conceded now to be the very best bed, and a good hair bolster is the most wholesome head rest. Sleeping with a number of pillows under the head is certainly injurious, as it tends to raise the head into a cramped unnatural position. The fashion of double beds is one greatly to be deprecated, and two single beds placed side by side are taking their place in many cases. So high an authority as the London *Lancet* says, in discussing the question: "Nothing will so derange the nervous system of a person who is eliminative in nervous force as to lie all night in bed with another who is absorbent of nervous force. The latter will sleep soundly all night and arise refreshed in the morning, while the former will toss restlessly, and awake in the morning fretful, peevish, fainthearted and discouraged. No two persons, no matter who they are, should habitually sleep together."—*Hall's Journal of Health.*

Arsenic in Wall Paper.—The report of the State Board of Health relative to arsenic in wall paper was submitted to the Massachusett Legislature on the 10th ult. It was found that of 1,018 samples collected in twenty cities and towns, 389 contained arsenic in appreciable quantities. About 3 per cent of the papers manufactured to-day contain more than one-tenth of a grain of arsenic per square yard, against 30 per cent, approximately, ten years ago. Between 60 and 70 per cent of the papers sold are free from arsenic, while about 6 per cent contain more than one-twentieth of a grain per square yard.

MISCELLANEOUS.

The North Pole.—Dr. Nansen, a hardy Norwegian navigator, is going to set out next January to find the North Pole. He means to make sure of it this time. He says that a current sets from Siberia right across the Pole to the North coast of Greenland, and that it is the continuation of this current which flows down the east coast of Greenland. Various objects have been discovered on the Greenland coast which it is believed could only have been floated from Siberia or the sea to the north of it. His expedition will be away between three and four years, as the progress will be necessarily slow, and, moreover, the current is believed to oscillate. His specially constructed vessel is now nearly completed. Its net tonnage will be about 250, and Dr. Nansen is confident that it is indestructible by any amount of ice-nipping. The accommodation on board will be ample for the twelve men who will compose the expedition. Provisions will be taken for six years, and care will be taken to select these in such a form as will give the greatest amount of nourishment with the least bulk. Of course it is expected that a certain amount of fresh meat will be obtainable on the route. Among the matters of importance to be settled, as we imagine, are whether there is really any pole there, and if there is, whether Jerusalem is to the *south-east* of it as some sophomore said.

Improved Locks.—French ingenuity has contrived a remedy for the inefficiency of ordinary combination locks for houses and apartments, these contrivances being usually of so little avail against professionals who, wasting no time in efforts to raise the tumblers and move the bolt, simply insert the end of a short iron lever or "jimmy" between the door and its rabbet, forcing the whole affair inward, tearing out both locks and bolts on the way. According to the new device for meeting this difficulty a combination is resorted to of the iron shore with the ordinary lock in such a manner that locking the door sets a shore in place which will resist an enormous strain but on the return of the proprietor the unlocking of the door in the usual way shifts the upper end of the shore from the door to the frame, where it presents no obstacle to the opening of the door. The mechanism of the lock itself need not be very elaborate, although the picking of the lock would move both the bolt and the shore, for if there are tumblers enough to prevent picking with a bit of wire, and if the jimmy is insufficient for the purpose, the point of security is attained.

Chinese Razors.—The Chinese razor has the shape of an isosceles triangle. It is made of rude steel, and many of them are pounded from well worn-out horseshoes, which are imported from Europe by the thousands of barrels, and are used in making all kinds of Chinese implements.

What a young man who has a best girl wants is to hold his own.

The greatest need of girls' schools are principals, not men.

LEARNING TO WALK.—People sometimes ask at what age can we seat a child in a chair; when put him on his legs; how old must he be before we teach him to walk? The answers are easy: He must not be made to sit till he has spontaneously sat up in his bed and has been able to hold his seat. This sometimes happens in the sixth or seventh month, sometimes later. The sitting position is not without danger, even when he takes it himself; imposed prematurely upon him, it tires the backbone and may interfere with the growth, so the child should never be taught to stand or to walk. That is his affair, not ours. Place him on a carpet in a healthy room or in the open air, and let him play in freedom, roll, try to go ahead and feet, or go backward, which he will do more successfully at first; it all gradually strengthens and hardens him. Some day he will manage to get upon them, and then to raise himself up against the chairs. He thus learns to do all he can as fast as he can, and no more. But they say, he will be longer in learning to walk if he is left to go on his knees or his hands and feet indefinitely. What difference does it make if, exploring the world in this way, he becomes acquainted with things, learning to estimate distances, strengthens his legs and back, prepares himself, in short, to walk better when he gets to walking? The important thing is, not whether he walks now or then, but that he learn to guide himself, help himself, and to have confidence in himself. I hold, without exaggeration, that education of the character is going on at the same time with training in locomotion, and that the way one learns to walk is not without moral importance.—*Popular Science Monthly.*

SUGGESTED BY THE WEATHER.

An evil spring this has thus far been, by reason of sudden violent changes in temperature, excessive humidity and fierce raw winds, all provocative of a rich diversity of distressing maladies, and perhaps some spiritual as well as physical detriment to suffering humanity. Of course, when the weather agitates itself in the wildly untrammelled way it has been going on out West, sweeping away homes, devastating farms, demolishing towns and flooding vast areas, it is no respecter of persons, any more than is the rain—which "falleth alike upon the just and the unjust." But such weather as we have had in the East, the sort which is simply bad—without seeming to necessitate any vehemently imprecative qualification of the "bad"—though equally disagreeable to all, is actually dangerous only to those whose vitality is lowered, either by hereditary weakness, chronic predisposition (from specific individual causes) to disease, sedentary lives or imprudent and vicious habits. But, what an enormous percentage of the community is included in those classes! The vitiated blood or specially enfeebled organs of a single ancestor, who lived half a dozen generations ago, imperils the existence of scores, or perhaps hundreds of his descendants to-day, the seeds of future maladies sown in childhood by scarlet fever, measles and diphtheria ripen with light provocation in the adult; the gross-feeder, exercise-hater, overheated-room lover and above all the habitual alcohol consumer—all are full of promise to the compilers of mortuary statistics in such a spring as this.

The bacteriologic cranks, who imagine a special microbe for each of all the ills that flesh is heir to—hardly even excepting broken legs and ingrowing toe-nails—of course find such weather especially suited to the development and spread of all sorts of bacteria, the longest of which is not a fifty-thousandth part the length of his name in print, but the shortest of which may make nations tremble. But the weather is enough of itself, without microbic assistance, to cut a wide swath among the classes specified. Why? Because in them the vital current which should carry health and consequent strength and potency of proper action to all the organs, is so impoverished or poisoned that it no longer is able to fulfill that mission.

Put before a skillful microscopist, one accustomed to making blood examinations, one hundred drops of blood from as many different persons, and he will be able to pick out unerringly the few well from the many ready to become ill, if not already so. The full red corpuscles, in long continuous chains, and other indications "plain as print" to his practiced eye, will point out those neither weather nor bacilli are likely to assail. And the others he will detect by the disintegration and scattering of the chains, the shrivelled irregularity of the red corpuscles, the altered appearance of the white corpuscles, or "phagocytes," the presence of fibrin, and crystalized substances, etc.

The lesson deducible from these facts is a simple one. If we would protect ourselves against the imminent dangers of this season of change, we must take care to have our blood in suitable condition for nutrition of the vital organs. It must be pure or health is impossible. Whether its vitiation is an inheritance or the result of our own misfortunes or vices, is immaterial, the important fact being that in either case it must be purified and enriched if we would retain our hold upon life. The medicine which can be confidently relied upon to do this work is that peerless combination of alteratives known as Ayer's Sarsaparilla. Physicians of standing know and approve of the formula under which it is prepared, its ingredients being Honduras sarsaparilla, yellow dock, stillingia, and other powerful alteratives and tonics, all of the best quality, blended in proper proportions, by the highest chemical art, and with conscientious care. The best all-the-year-round medicine in existence, Ayer's Sarsaparilla is peculiarly adapted for spring and early summer.

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GOUT, RHEUMATIC GOUT AND RHEUMATISM.
WHAT THE HOT SPRINGS PHYSICIANS SAY:

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"My experience in the use of BUFFALO LITHIA WATER is limited to the treatment of **Gout, Rheumatism** and that hybrid disease, '**Rheumatic Gout**' (so called), which is in contradistinction to the **Rheumatoid Arthritis of Garrod.**

"I have had *excellent results* from this Water in these affections, *both in my own person and in the treatment of patients for whom I have prescribed it.* Of course, the remedial agent is its contained **Alkalies** and their solvent properties.

"Hence it is a **prophylactic**, *as well as a* **remedy in Nephritic Colic**, *and forming* **Calculi** *when due to a redundancy of* **Lithic Acid.**"

The Late Dr. Wm. F. Carrington, Resident Physician, Hot Springs, Ark., Surgeon (retired), U.S. Navy, Surgeon Confederate States Navy:

"BUFFALO LITHIA WATER, Spring No. 2, has signally demonstrated its remedial power in **Gout, Rheumatic Gout, Rheumatism, Uric Acid, Gravel** and other maladies dependent upon the **Uric Acid Diathesis.**

"*It not only eliminates from the blood the deleterious agent before it crystallizes, but* **dissolves** *it in the form of* **Calculi,** *at least to a size that renders its passage along the ureters and urethra comparatively easy.*"

Dr. T. B. Buchanan, Resident Physician, Hot Springs, Ark.:

"*Send me five cases* BUFFALO LITHIA WATER, Spring No. 2. I have made use of this Water for **Gout** *in my own person and prescribed it for patients similarly suffering, with the most decided beneficial results. I take pleasure in advising* **gouty** *patients to these Springs.*"

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"I prescribe BUFFALO LITHIA WATER with great confidence, in all diseases of **Uric Acid Diathesis.** When traveling, it is my habit to use this Water as a guarantee for getting a pure water."

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THE STATEMENT OF DR. BLAYDES:

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LADIES' KID SHOES.

It is needless for us to tell our lady readers that so-called kid shoes are made of goatskins and that the manufacturers of such leather have been erroneously called morocco manufacturers. All this, however, is of little importance. What is wanted is a knowledge of what kind of leather is best adapted for a ladies' shoe and what brand of leather it is best to enquire for. This we propose to tell, divested as much as possible of all technical terms. The largest manufacturer now in the United States of "fine glazed kid" for ladies' shoes is Robert H. Foerderer, Philadelphia, whose factory has a capacity of 18,000 skins per day. He has trade-marked his brand known as "Vici Kid," which may also be found on every shoe made from it. The following is a description of this new application of modern chemistry to tannage from the *Leather Manufacturer*:

MODERN CHROME TANNING.

[An exhaustive description of the manufacture of kid of to-day.]

About five years ago the morocco trade of this country experienced a great revolution. The class of goods which was turned out up to that time ceased to be called for by shoemakers, and manufacturers were obliged to turn their attention to the newer mineral tannages with a glazed finish. French kid was the standard of excellence and the aim of experimenters was to reproduce this as nearly as possible. The methods of tanning this leather in France, as nearly as could be ascertained, were to tan or taw the skins with alum, salt, flour and egg yelk, dry them out and lay them away for six months or so before finishing. This "ageing" or "laying away" was essential in order that the alum should "set" and be rendered somewhat insoluble or, in other words, that the soluble sulphate or alumina in the alum should be converted to the insoluble oxide.

This process was altogether too slow for the American manufacturer, and, also, the price leather tanned by this process commanded was not sufficient to recompense him for the large stock necessarily carried and the large capital required to conduct the business.

About this time was discovered that gambier used in connection with alum produced leather that could be finished at once, without laying the stock away for several months, and also that the finished product was strong, handsome, and would stand more wear than the imported article.

This alum and gambier or so-called "Dongola" tannage, is entirely an American process, and has been brought to great perfection during the last few years.

While French kid was only made into high-priced shoes which were naturally taken care of by the purchaser and worn in the house or only out doors in fine weather and on city pavements, the American Dongola leather, owing to its lower cost, was made into all grades of shoes, some of which sold at a very low price, and which were subjected to hard wear during inclement weather, often in muddy country roads and on rough uneven pavements. This soft kid leather is not adapted to rough wear and did not give satisfaction when subjected to it. Shoes when soaked were apt to dry out hard and unpliable, and the grain was apt to peel off when brought in contact with rough stones or subjected to the constant wear of ladies' dresses. Shoe manufacturers became more and more exacting in their demands. They wished a gloss or finish that was waterproof—leather that would stand a good wetting without injury, and which had a tougher grain, and so since the beginning of this year, there has been a marked falling off in the demand for "Dongola" leather, and the product which now seems to fill the requirements of shoe manufacturers is produced by the so-called "acid" or "chrome" process of tanning. It has long been known that the salts of chromium have a strong affinity for gelatine, and form with it insoluble compounds, and therefore have tanning power; but it is not until very recently that these salts of chromium have been employed in the manufacture of leather with success.

All the salts of chromium may be used for tanning as well as bichromate of potash, or magnesia, chromic acid, and bichromate of ammonia, aluminum and iron.

But so far experimenters have generally confined their attention to bichromate of potash, as this is the most widely known and cheapest of the chromium salts.

Potassium bichromate, generally known as "bichromate" or "bichrome," is manufactured in large quantities from chrome iron ore or chromite by the action of some oxidizing agent. The important mineral is found in large quantities near Baltimore, Md., in Norway and the Shetland Islands off the coast of Scotland, as well as in Asia Minor, Liberia and Australia. There are a large number of methods of preparing bichromate of potash from this mineral, which I will not here take the space to describe.

Bichromate of potash crystallizes in anhydrous, fine, red, square tables. Specific gravity 27, and is of intensely metallic taste; 100 parts of water at 32 deg. Fah. dissolve 4.6 parts at 60 deg. Fah., 12.4 parts, and at 212 deg. (boiling) 94 parts.

Potassium bichromate is used in the preparation of all chrome pigments, in the coloring of cloth and other textile fabrics; in the manufacture of aniline violet and other aniline colors; in solution with sulphuric acid it is used as a bleaching agent for tallow, palm oil, etc. When mixed with organic substances it is reduced on exposure to light; gelatine under such circumstances is rendered insoluble. This reaction with gelatine is of the greatest importance and may be applied to many purposes besides the manufacture of leather. It is taken advantage of in the "carbon" process of photography. The paper carrying the film is sensitized by a solution of bichromate of potash, and when exposed to the light the gelatine becomes insoluble and retains the pigment.

The first use of bichromate for the purpose of tanning was made by Cavalier. His process consisted of placing skins in a solution of bichromate of potash and potash alum. To 100 parts of water six parts of bichromate and twelve parts of alum were taken.

The skins were agitated in the above solution until they had absorbed the metallic volts, when they were removed, allowed to become partially dry and then placed in a bath prepared by dissolving ten parts ferrous sulphate (copperas) in 100 parts of water.

The use of chrome for tanning has long been known, but as chrome makes the skins practically water-proof, the difficulty to overcome was in the finishing processes which always involved the use of water. These important operations were finally mastered by some of those manufacturers who now make chrome-kid and by none more successfully than by Mr. Foerderer. Shoes made from chrome-tanned skin will outwear and keep gloss longer than any leather made, and are practically impervious to water. For this reason we recommend such shoes to our readers.

On another page we publish a partial list of those shoe manufacturers who use the "Vici" kid. By demanding these shoes and carefully observing the trade mark which ought to be on each shoe, our readers can be sure that they are obtaining the genuine article. In a future article we will try to show other reasons for using and many other advantages possessed by the leather.

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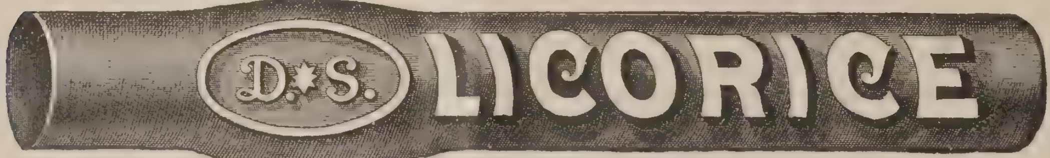

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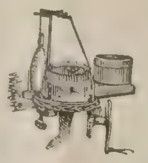

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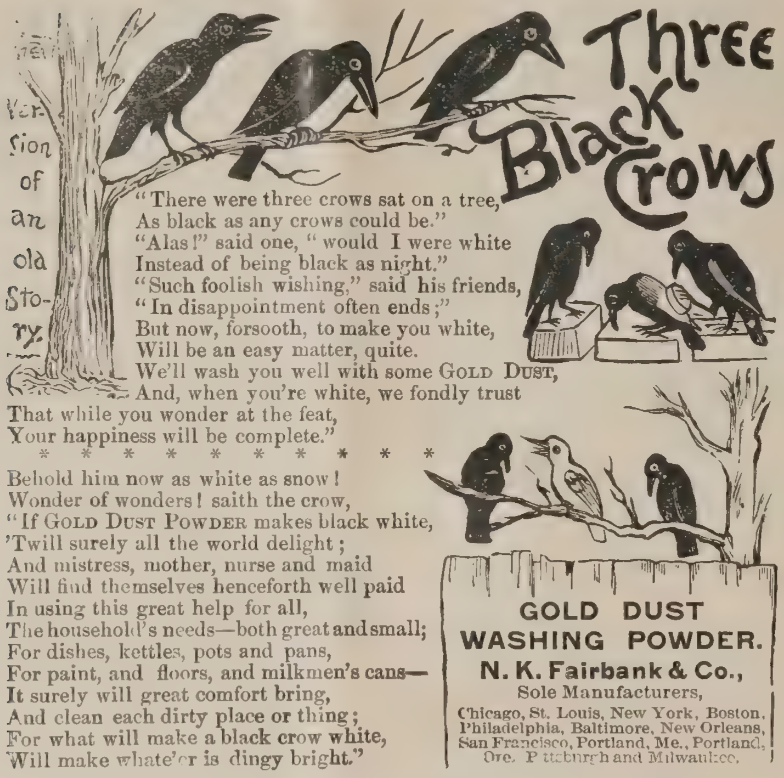

"There were three crows sat on a tree,
As black as any crows could be."
"Alas!" said one, " would I were white
Instead of being black as night."
"Such foolish wishing," said his friends,
" In disappointment often ends;"
But now, forsooth, to make you white,
Will be an easy matter, quite.
We'll wash you well with some Gold Dust,
And, when you're white, we fondly trust
That while you wonder at the feat,
Your happiness will be complete."

* * * * * * * * * *

Behold him now as white as snow!
Wonder of wonders! saith the crow,
"If Gold Dust Powder makes black white,
'Twill surely all the world delight;
And mistress, mother, nurse and maid
Will find themselves henceforth well paid
In using this great help for all,
The household's needs—both great and small;
For dishes, kettles, pots and pans,
For paint, and floors, and milkmen's cans—
It surely will great comfort bring,
And clean each dirty place or thing;
For what will make a black crow white,
Will make whate'er is dingy bright."

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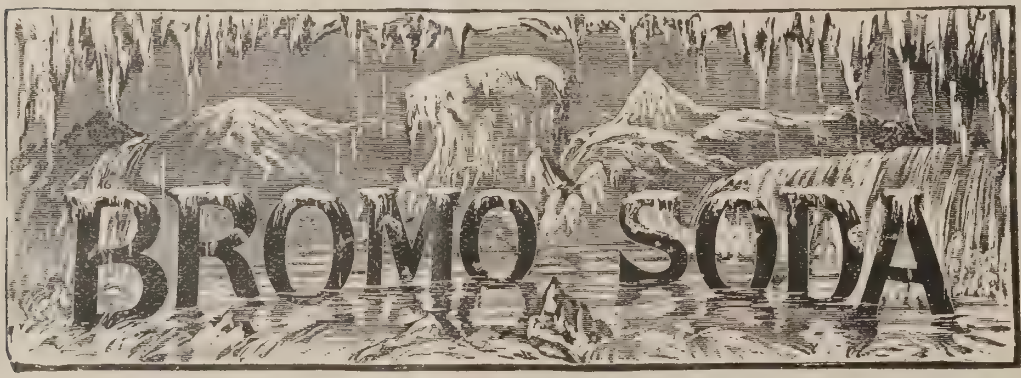

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CONTENTS.

Page
Accidents with Petroleum 183
Adulteration of Paints and Oils 183
Artificial Feeding of Infants 185
Editorial 181
The Paddock Pure Food Bill—Insect Illumination—Dangerous Entertainment—State Dairy and Food Commissioners and Health Boards—The Massachusetts Grab.
Historical and Other Facts Regarding Vaccination 184
Household 182
Hydrophobia 185
Hygienic 186
Macaroni 183
Medical 183
Miscellaneous 187
New Books 187
Prophylactic Influence of Tobacco 183
Sleep as a Treatment for Invalids 185
Some Ways of Serving Sweetbreads 182
Spring Cleaning 182
Ventilation of Churches 187
Water Supply and Public Health 186

THE PADDOCK PURE FOOD BILL.

The two trades most affected by this bill, if it becomes a law, are the grocery and drug trades. The grocery trade, judging by the editorials in the grocery trade papers, are not much concerned about the bill, but if anything favor it, on the general principle that if by law adulterated groceries are prohibited, they will be able to sell pure goods at fair prices without having to meet the unfair competition of adulterated goods sold as pure goods at lower prices. The drug trade, however, does not take very kindly to the bill. In an editorial in the *Pharmaceutical Record* we find some apparently well-founded objections to the bill in its present form which deserve careful consideration at the hands of Congress. Attention is drawn to the fact that the bill, as it now reads, does not make any distinction between drugs for use as medicine and those to be used in the arts and commerce. Instances are given such as prussiate of potash used for hardening iron, and alum used in many branches, which, though just as good for use in manufacturing, would cost too much if they had to be made chemically pure, as required by this bill. On the other hand it will be a difficult task to so adjust the requirements of the law as to exempt drugs to be used for manufacturing from its effects without leaving loopholes for the unconscientious adulterator to creep through. The same journal also contains a series of letters from the trade on this bill, some of the expressions of which are hardly logical. One correspondent claims that the bill is unnecessary, because "the standard of purity of drugs and medicines is very much higher in this country than in any foreign country." He ascribes this claimed superiority to education rather than legislation. While we are not prepared to take issue with this writer on the general subject, we cannot but point out two important directions in which a much more stringent law than the Paddock bill would seem to be urgently needed. One of these is the too general custom of the retail druggists to substitute drugs in prescriptions; there are too few strictly honest druggists who will frankly tell a patient that the prescription they are asked to compound contains an ingredient which they have not on hand, the majority will get over the difficulty by substituting something else which they may honestly imagine will answer the purpose, but about which the prescribing physician may have sound reasons to hold a different view. The other direction is that of uncertainty of strength of tinctures kept in stock a long time, from which the alcohol may have partially evaporated, making them stronger or where to prevent this, alcohol has been added without much regard to exactness making their strength an uncertain quantity. These two crying evils should be provided for. Another correspondent objects to the bill on broad political grounds of centralization and creating new offices. His personal politics are too self-evident and prevent any weight being attached to his opinions. The other opinions are about equally divided for and against, and none of them advance any tangible arguments, all being mere assertions largely dependent upon the individual political opinions, preferences and self interest of the writers. Such laws should be passed solely with reference to their need and the requirements of the whole people and regardless of individual interests.

INSECT ILLUMINATION.

The secretary of the Smithsonian Institute, Prof. Langley, has been recently experimenting with Cuban fireflies with a view to discovering the manner in which the illumination they emit is generated. He says that the light they give is the "cheapest" in the world—produced, that is to say, with the least heat and the smallest expenditure of energy—and he believes that a successful imitation of it would prove a most profitable substitute for gas or electricity. The insects are beetles two inches long, and belong to the family of "snapping bugs," so-called because when one of them is laid on its back it snaps itself into the air with a clicking sound. The secret of the light this firefly gives is as yet undiscovered. Apparently it is connected in some way with the mysterious phenomena of life, and chemists and physicists have sought in vain to explain its origin. On each side of the animal's thorax is a luminous membranous spot, and these flash at intervals, so that the Cubans put a dozen of the insects in a cage together and so obtain a continuous illumination bright enough to read by. This light is accompanied by no perceptible heat, and is seemingly produced with almost no expenditure of energy. How great an improvement it represents upon all known artificial lights can be imagined when it is stated that in candle light, lamp light, or gas light, the waste is more than 99 per cent. In other words, if they could be so obtained as not to throw anything away, they would give nearly one hundred times the illumination which they do afford. Even the electric light is mostly waste.

DANGEROUS ENTERTAINMENT.

The American system of free lunch not having as yet been generally adopted in Europe, various methods are availed of to attract custom to the continental saloons. In Paris it has lately been the custom in many of the larger bars and cafés to give conjuring entertainments for the amusement of the customers. These cafés are some variation from the ordinary *cafe chantant* routine. Since the phenomena of hypnotism have become known to the public, and the ability to produce these phenomena has been to some extent popularized, this branch of science has been called in to afford amusement to the café customers. But unfortunately many of these so-called professors of the science were simply frauds, and did not know anything about the science really; while some knew a little, but not enough, and the consequence has been that a great deal of harm has been done to weak, nervous people, who have gone up on to the platform to be operated upon. The harm has been considerable amongst delicate young girls who have lent themselves as it were to the hypnotists as subjects in the experiments. In order to prevent any further harm being done in this way, the police have taken very decided steps, and have forbidden any experiment in magnetism or hypnotism to find a place in these café entertainment programmes. This is a good thing, for these *seances* were not likely to be of any benefit to science, and they only brought the cafés in which they were held, as well as the phenomena they exhibit, into discredit with a suspicious public.

STATE DAIRY AND FOOD COMMISSIONERS AND HEALTH BOARDS.

This journal being issued semi-monthly, and reaching every board of health and food commission, forms a rapid and secure means of communication between the several boards charged with the detection of adulteration. Many have already availed themselves of our columns for this purpose; all are welcome to use them. They are always open and free for any communication on the subject. By calling attention of other officers having similar duties in other States to adulterations coming to their notice, it will bring numerous investigators to their mutual aid, and thus easily prevent the spread of the evil, assist each other, and facilitate labor.

THE MASSACHUSETTS GRAB.

We are not yet in possession of all the analyst's reports on the spices under analysis, therefore refrain from any further remarks on the subject we have been discussing. One fact we have established clearly, that is, that one or two Boston spice houses have taken advantage of home protection to put on the market a brand of mustard and spices of a very high grade, for which they obtain a very high price. On the strength of the supposed stringent administration of the Massachusetts anti-adulteration laws, this same firm puts up some of the poorest goods made and sells them in other States at a large profit as strictly pure goods, a sharp trick which we shall spare no pains nor expense to show up.

HOUSEHOLD.

SOME WAYS OF SERVING SWEETBREADS.

APPROVED RECIPES.

Sweetbreads are daily becoming more and more in demand, both to tempt the capricious appetite of convalescing invalids, and for dainty dishes on dinner, lunch, or tea tables.

While by no means difficult to cook, care must be taken to follow the directions for their preparation, the process being the same no matter which of the recipes is chosen.

In selecting, the larger, plumper, and more fleshy they are, the better. Put them first into tepid water, letting them remain from fitfeen minutes to half an hour, then set on the fire in cold water, to which a little salt has been added. As soon as the water begins to boil, pour it off, and slip them into a pan of cold water until they are perfectly cold. This parboiling and chilling, which is termed "blanching," makes them fair and white.

Next remove the pipe and skin. For this purpose scissors are better than a knife. (It is said that woman signalized her entrance into the chemist's laboratory by substituting the pitcher and scissors for the bottle and knife always used by man.) And as the sweetbreads are in pairs cut them apart.

Served Whole with White Sauce.—The sauce requires half a cup of milk, one tablespoonful of flour, and a piece of butter the size of an English walnut (allow the flour and the butter to each sweetbread). Braid the flour and the butter together, let the milk come to a boil, stir in the flour and the butter, add a blade of mace, and let all simmer five or ten minutes. The sweetbreads are simmered in this sauce until every tinge of pink disappears. They are kept in shape with the wooden toothpicks—called toothpick skewers—used for fish and small birds.

When thoroughly done, lay them on a small dish, put a border of parsley around them, and pour the white sauce over and around them. The mace is, of course, removed before serving.

Sweetbreads with Cauliflower.—Cut the cauliflower into handsome pieces, blanch and trim the sweetbreads, and lay them all in a deep saucepan. Fill two-thirds of the depth of the pan with water, season with a few blades of mace, pepper and salt. Let the whole stew for three-quarters of an hour.

To serve, place the sweetbreads in the center of the dish, arrange the cauliflower in a border, and pour the gravy—thickened with cream and a tablespoonful of butter and flour rubbed together—over the sweetbreads.

Sweetbreads with Tomato.—Stew a quart of tomatoes until they are quite smooth—which will require about three-quarters of an hour—then rub them through a strainer so that you will have a smooth thick sauce. Have ready four sweetbreads, blanched and trimmed. Put them into a pan with the tomato, season with salt, pepper and mace or nutmeg. Add two or three tablespoonfuls of butter rolled in flour. Set the pan over the fire, and stew until the sweetbreads are thoroughly done, which will be in about three-quarters of an hour. Before taking off, stir in the well-beaten yelks of two eggs. Serve with small pieces of fried bread placed in the dish with the sweetbreads, and the sauce poured over.—*Harper's Bazar.*

Remedy for Whooping Cough.—M. Chibert declares that he has rapidly stopped the kinks of whooping cough by sprinkling finely-powdered iodoform on the child's pillow.

Fried Codfish.—Take some slices of cod about an inch thick and dry them on a towel, then dip them in beaten egg and bread crumbs first sprinkling them with salt and pepper. Have some lard or good drippings boiling hot, and fry the fish in it until it is a good brown; drain the fat off each slice and serve at once.

Beef and Bread.—The people of the United States consume an average of 175 pounds of meat each per annum. With a population increasing at the rate of more than 2,000,000 yearly, we can stand some increased production of beef. We also eat white bread, and more of both of these articles than any other people in the world. This does not indicate the extreme poverty the calamity orators tell us about.

SPRING CLEANING.

BY MRS. I. G. BAKER.

In the spring the sunshine lingers on tall tower and castle wall,
In the spring the sunshine enters cottage door and window small.
In the spring dark winter's dust lies bare in all the sunny rooms,
In the spring the careful housewife sets to work with mops and brooms.

How pleasant it is to enter a house that is thoroughly clean: no stuffiness, the air fresh and pure to breathe—all the glass, china, ornaments and furniture looking bright—the dust shaken out of the carpets, and swept from the corners and crevices where it may have been hidden during dark days. Spring is the best season for thorough cleaning, because at that time the days are cool, and long and bright, and one finds the benefit of one's work, and has the pleasure of seeing things look their best all through the sunny summer days.

Once a year at least, every place in the house should be made thoroughly clean, every hole and corner should be examined, all cupboards and drawers turned out, dusted, or washed, and the contents neatly replaced. Books taken down from their shelves, well brushed and dusted on all sides, and returned to clean shelves.

It is best to begin cleaning in the highest room in the house, day by day, coming gradually down and finishing with the kitchen and scullery.

If workmen are employed for whitewashing, papering and painting, their work should be done first.

The rooms should be prepared by all movable pieces of furniture being taken out of them, also the ornaments, pictures and curtain poles. The carpets should be taken up (not pulled up, the tacks taken out with a nail pick) and sent to be beaten, and all the remaining furniture carefully covered with dust-sheets. Then the chimney should be swept, if there have been fires in the room, and afterwards the floor sprinkled with tea-leaves and swept with a broom.

If no workmen are to be employed, then clear out the room in the same manner. Let the sweep come, and half an hour after he has finished, when the dust has settled, sprinkle the tea-leaves, sweep the floor, and carry the dustpan away at once to be emptied of its contents. Next, unless your broom is perfectly clean, tie a clean duster or towel over the bristles, and brush all over the ceiling and walls. Dough or bread may be used for rubbing the paper where it has been soiled.

After this is done, lay a clean dust-sheet on the floor and place on it the bed and mattress; they should be well brushed on the sides and ends, blankets should be shaken (in the open air if practicable), then folded, laid on the bed, and covered with a dust-sheet. Next, get a pail of hot water, a flannel, a towel for drying, and soap. First wash and dry the bedstead, using a brush for the corners. Leave it to dry thoroughly before replacing the bedding, and begin to wash the paint on the doors, windows and elsewhere; do it very carefully with clean water and soap and dry with a soft cloth; also wash the mantelpiece and do not touch the wall paper with the wet flannel. If the marble does not look well, rub it over with a mixture made of one pennyworth of carbonate of potash and twice the quantity of whiting, softened to a paste with water.

Let this be washed off after it has remained on the mantelpiece twelve hours. Wash any painted furniture and scrub out with a brush, soap, and warm water the drawers of the washstand and any cupboards that require it. Polished furniture may be washed with lukewarm water and soap; a small piece of flannel should be used and the part dried at once with a soft linen cloth and immediately afterwards polished with cream, made of half a pint of linseed oil, half a pint of vinegar, one ounce of butter of antimony, and a piece of rosin the size of a walnut dissolved in a warm place for several hours. The earthenware should be washed with soap and water, in which a little soda is dissolved, then the floor must be well scrubbed and allowed to dry thoroughly before the carpet is put down.

The windows must be washed with cold water, using two chamois leathers, one for washing and one for drying.

The pictures and ornaments must be dusted and all glass and china washed, using plenty of clean warm water. The glass should be polished with a chamois leather. Nothing now remains to be done but to lay the carpet, hang the pictures and the clean curtains, and replace the ornaments.

To clean the sitting rooms and the drawing room, proceed in the same manner as was done in the bedrooms, by first removing all ornaments and pictures, taking down the curtains to be shaken out of doors, and well brushed. They should then be folded neatly and evenly, a small piece of camphor placed in the folds, and afterwards wrapped in brown paper sprinkled with turpentine and put away in some convenient place until required for winter use. Unless there is a large number of books it is best to take them out of the room. The furniture must be covered and the floor and chimney swept; then the ceiling and walls before beginning to wash the paint.

In a library it is best to cover the books carefully until chimney and floor have been swept, then remove the dust-sheets and take out the books, of one shelf only at a time, brushing and dusting them very carefully; dusting and polishing the shelf and replacing the books on it in the same order in which they were previously arranged. It is best to begin with the top shelf and continue downwards, and when all are done the bookcase must be closely covered with dust-sheets until all is finished and the carpet has been relaid.

If the fireirons are made of steel and are not required in summer, they should be rubbed with oil, wrapped in brown paper and put away safely for winter use.

MACARONI.

CHARACTERISTICS OF THE GENUINE, ETC.

The best macaroni are made from the flour of the hard wheat known as Tagaurok, principally raised in Russia and Algeria. This flour is best adapted because it is more glutinous and less starchy than all other flours. The flour is known as Semolina. The French and Italian macaroni are crisp, and break with a clear, hard cut. Even when soaked in water or held in the mouth for some time they never become doughy like those made in America. Many unscrupulous American manufacturers put up macaroni with French labels and affix the tag required by the customs laws on imported macaroni, "Packed in France." The test we have just given will readily detect them. It of course is based on the glutinous nature of the flour from which the imported macaroni are made, which acts entirely different from starchy American flour. Of the foreign macaroni the French is to be preferred on account of greater cleanliness of manufacture. In France macaroni are made in large factories and dried in regular drying rooms, while in Italy they are mostly made in a small way and frequently dried in the ordinary living rooms of any Italian family.

ADULTERATION OF PAINTS AND OILS.

[Written for the *California Architect*.]

Perhaps of all the adulterations from which the public suffer, the most aggravating is that caused by the adulteration of paints and oils, and this because the amount of profit to be derived by the painter is so small when compared with the loss and damage to the owner of the property, caused by the use of poor material when the best the market affords is called for in the specifications of the architect. The labor of painting being the same, or very nearly the same when good materials are used, as when the adulterated, or substitute, is employed, the extra profit being only on the first cost of the stock; which bears no comparison to the injury done to the owners of the property where the latter is used.

A slight review and comparison of the two methods of work may not be uninteresting to architects, contractors, and others who take an interest in the welfare and good looks of our city and its surroundings.

To the better understanding of the subject it may not be out of place to glance briefly on the composition and manufacture of both lead and oils as intended for the use of the house painter, upon which much ingenuity, skill and science has been displayed, to say nothing of the vast sum that has been expended in plants for the manufacture of an article intended for the use, ornament, and preservation of our buildings.

White lead, or carbonate of lead, is manufactured from the purest of metallic lead, great care being used in the selection of the same to obtain the best quality, care being taken to avoid that containing much silver, that metal being the one that would cause the discoloration of the finished article. It is a singular fact that of all the rapid processes for making white lead, none have superseded the old Dutch method for producing white lead with body, or covering quality—this is due no doubt to the opaqueness of each particle of the body—if each article is more or less transparent it shows the effect when spread upon wood, notwithstanding the same amount of lead may be contained in both preparations.

The white lead ground with linseed oil forms in time a chemical compound instead of a mere mechanical mixture. It is this quality that renders it so valuable a medium for preserving wood from decay. The wood absorbing the oil and carrying the lead into the pores, thus preventing the atmosphere from encroaching upon, and commencing its work of oxidation upon the wood. Another cause for the preservation of the wood may be found in the destructive effect that lead has upon all fungus growth.

If, however, sulphate of baryta, a heavy earth, though of the same weight, bulk for bulk, as white lead and also satisfactory in regard to its color, be ground with oil, the result is merely a mechanical mixture, no chemical union takes place between the oil and baryta, no cement is formed and but little protection of the wood afforded. In fact, it is little better than a coat of whitewash, if so good. Now what is true of the whole is true of a part, and a mixture of half and half lead and baryta, is only half as good as all lead. Some painters contend that as baryta is a permanent color it is an improvement to add to the lead, this might be true if the oil united chemically with the baryta as it does with the lead. This not being the case, however, it may be considered an adulteration pure and simple.

Before leaving the subject it may not be amiss to give an easy mode of detecting the presence of baryta. Take a small quantity of the suspected article, say a tablespoonful or less of the mixed paint, put it over an open fire, in an iron ladle, or small crucible,thus burning off the oil and turpentine. Then add to the remainder placed in a glass vessel, some nitric acid diluted one half with water—the lead will be dissolved forming nitrate of lead, the baryta left as a residue.

Linseed oil, as is well known, is expressed from flaxseed—the best quality being obtained from cold pressed seed—an additional quantity of lower quality is obtained by heat and repressure. It would seem that up to the present time nothing has been devised of a more satisfactory nature than this oil for the purpose of making a mixture with lead, or other mineral oxides and carbonates, for the reason that the oil will form with the lead or other mineral oxides, a chemical combination and therefore a more lasting protection to the wood, and thus serve to give wood and metals a coating well adapted to protect them from the action of the atmosphere.

Pure white or red lead ground with linseed oil, thickened to the proper consistency with spirits of turpentine, furnish a coating to wood or metal that will protect as well as ornament, also remain a protection and ornament for a reasonable length of time—while on the other hand poor fish oil diluted with benzine and ground up with baryta, affords no adequate protection to either wood or metals—and though for a short time may look well will soon blister, work off, and look dirty—affording no protection to the wood and become anything but an ornament.

The dealer in adulterated paints and oil should be held accountable for a large measure of the blame for such work, many painters doubtless purchase their stock in good faith that the articles they buy are what they profess to be. We were informed some years since that one of the largest of Eastern paint manufacturers, one, too, that manufactured much pure paint, never placed on the label "pure" except upon adulterated paint.

The claim for Lucol as a new invention to resist water, acids, alkalines, etc., and far above linseed oil in some respects, the writer leaves to others for further consideration.

ACCIDENTS WITH PETROLEUM.

MOST OF THESE ACCIDENTS DUE NOT TO DIRECT EXPLOSION, BUT TO UPSETTING, ETC.

Statistics show that the majority of accidents due to petroleum lamps are caused not by explosion, but by the lamp being upset or falling down. An explosion may be produced by a rapid cooling of the glass or porcelain oil reservoir, from a cold draft, causing a bursting of the reservoir, or also by the rapid movement of the lamp when carried about, or by blowing down the chimney, bringing atmospheric air in contact with the explosive gas in the oil reservoir, and so forcing it out and in contact with the flame. A loose cap on the oil reservoir may produce a similar result, and, finally, an ill-fitting wick may cause a disaster by admitting cold air into the oil chamber, or by being screwed down, fall with a burning spark into the oil. In all these cases the explosion is not the direct cause. To prevent such accidents it is needful, therefore, to study the causes of the fire rather than of the explosion, and try to prevent the oil taking fire.

To Remove Ink Stains.—Strong muriatic acid applied with a cloth and the spot washed thoroughly with water, is recommended to remove ink stains from boards.

MEDICAL.

PROPHYLACTIC INFLUENCE OF TOBACCO.

RESULTS OF EXPERIMENTS.

Dr. V. Tassinari, of the Institute of Experimental Hygiene attached to the University of Rome, has been attempting to demonstrate the prophylactic advantages of tobacco smoking. He recalls the fact that in the eighteenth century, and even in the seventeenth, a certain number of medical men (Willis, Dimerbrock and others) advised their friends to smoke in times of epidemic. At Strassburg, in 1842, Ruef called attention to the fact that the workers at the tobacco manufactory were exempt from almost all the prevailing epidemics. Pecholier, in the *Revue d' Hygiene* (1883, p. 523), proclaimed the same opinion, and Dr. Walter Cock, of Texas, was rash enough to recommend in 1889, the use of tobacco as a preservative against phthisis. An American dentist (Dr. Miller, of New York), made experiments in 1884 with the smoke of tobacco on the microgerms of dental caries, and declared that the results were satisfactory and conclusive. Dr. Vassili, of Naples, employed in 1888 a small balloon, which he lined internally with a layer of gelatine containing cholera bacilli. He found that by drawing through this balloon the smoke of from one to four cigars (the number of cigars required depending on their strength in nicotine) the gelatine was completely sterilized. Dr. V. Tossinari has now repeated these various experiments, and maintains that the smoke of tobacco either entirely destroys or in any case retards the development of the bacillus of cholera, of anthrax, and of pneumonia. Dr. Tassinari published twenty-one charts indicating the action of tobacco on various known microbes, according to the nature of the tobacco and the amount consumed. The latter varied from one to six grams, smoked in from ten to thirty minutes. The bacilli of Asiatic cholera and that of Friedlander (pneumonia) were always completely destroyed, no matter what sort of tobacco was used. The bacillus of anthrax resisted better, and that of typhoid was hardly affected by the smoke. As a practical result of these experiments Dr. Tassinari insists on the utility of smoking as a means of preventing the decay of teeth. He seems to imagine that women suffer more from dental caries than men, and attributes this difference to the fact that but few women smoke. It must be confessed that these experiments are not conclusive. There is a great difference between the sterilizing of microbes in nutritive gelatine and in the human being. No one doubts the antiseptic qualities of nicotine. Sulphurous acid is also an antiseptic, but it still remains to be proved that London fogs and London smoke save the metropolis from zymotic disease.—*London Lancet.*

HISTORICAL AND OTHER FACTS REGARDING VACCINATION.

BY IRVING A. WATSON, M. D.

[From the New Hampshire State Board of Health Report.]

In this age we know very little of the frightful and fearful epidemics of small-pox that have desolated whole countries and left behind only death, poverty, and sorrow in their withering trail, except as we read the terrible revelations of history. The epidemics from this disease for more than a generation, though in some instances very severe, like that of Boston in 1872, and that in Montreal in 1885, in which some three thousand human beings were needlessly sacrificed, are no more to be compared to the epidemics of former times, than the gentle breezes of a summer's evening are to the devastating cyclone.

In earlier times this disease was the cause of *one-tenth* of all the deaths in Europe. It is estimated that in all Europe 450,000 died annually from small-pox; 30,000 died each year in France; 27,000 died in Prussia in a single year out of a population of seven millions.

The Europeans carried this disease, by commerce and explorations, from the equator to the frigid zones. The Danes imported it into Greenland; the Spaniards planted it in unhappy Peru, and its ravages were more terrible than the atrocities of their arms; in the single province of Quito 100,000 persons were swept away on its appearance in that country. In the colonial days of our own country it destroyed almost entire communities; as late as 1721 one half of the population of Boston were affected with it at one time.

Its contagiousness, its great fatality, and the horrible disfigurements that were generally stamped upon the faces of those that recovered, made it a disease "more to be dreaded than the plague."

Inoculation was frequently practiced to limit in a degree its ravages, or in other words, the poison of the disease from a fresh case was introduced into the arm of the person. This produced the true small-pox, but usually in a milder type than followed when taken in the natural way. This method, however, was attended with great danger, as the inoculated person not unfrequently died from the disease thus induced; the liabilities to contagion from such a case existed as in an ordinary case; the person inoculated had to be isolated in a "pest house" or hospital. Still, with its objections it was, in the days immediately preceding the discovery of vaccination, very generally resorted to, because it was certain that the disease could not be avoided, and many assumed the risk of inoculation immediately upon the appearance of a case in their locality.

This method, however, was under the regulation of rigid laws, and seemingly left as a monument in history; such an enactment existed in the General Laws of New Hampshire, until the year 1887, and possibly has not been repealed in other States where it was once legalized.

In 1798, Edward Jenner announced to the world the discovery of vaccination. In 1801, in answer to numerous inquiries, he said, "My inquiry into the nature of cow-pox commenced upwards of twenty-five years ago. My attention to this singular disease was first excited by observing that, among those whom in the country I was frequently called upon to inoculate, many resisted every effort to give them small-pox. These patients I found had undergone a disease they called the cow-pox, contracted by milking cows affected with a peculiar eruption on their teats. On inquiry, it appeared that it had been known among the dairies time immemorial, and that a vague opinion prevailed that it was a preventive of the small-pox."

Other writers corroborate the fact that in the agricultural districts of Europe the cow-pox had long been known to dairymen as a protection against small-pox. Pearson, in 1800, in writing upon vaccination, said: "The safety of the practice is confirmed by the inoculation [vaccination] so long practiced among the peasants in several parts of England, in the rudest manner, with pointed knives, awls, etc., time immemorial."

[Pearson did everything in his power to rob Jenner of the honor of the discovery of vaccination, by asserting that he had done more than Jenner to diffuse the knowledge and place it upon a basis to be thoroughly understood by all. His attempt, however, was an ignominious failure.]

Barry, a practitioner and writer contemporaneous with the authors just mentioned, says much upon the antiquity of cow-pox and its being known among the peasants as a protection against variola. He says: "The Irish name of the disease (Shinach) belongs to the old written language of the country, and has no relation to the modern colloquial dialect; this I consider a strong proof of the antiquity of the distemper. It is evident from the facts I have stated, and from the remainder which I have myself collected, or received from friends, that the belief of the anti-variolous power of the disease is as ancient as that of the existence of the disease itself."

It would seem that Jenner's great discovery was simply the recognition of facts which were familiar to many of the common people; but it was reserved for him to demonstrate to medical and scientific minds the value of these facts which in a simple way were best known to milkmaids. His own words best describe his progress in proving his theories: "During the investigation of the casual [natural] cow-pox, I was struck with the idea that it might be practicable to propagate the disease by inoculation, after the manner of the small-pox, first from the cow, and finally from one human being to another. I anxiously waited some time for an opportunity of putting this theory to the test. At length the period arrived. The first experiment was made upon a lad of the name of Phipps, in whose arm a little vaccine virus was inserted, taken from the hand of a young woman who had been accidentally infected by a cow. Notwithstanding the resemblance which the pustule, thus excited on the boy's arm, bore to variolous inoculation, yet as the indisposition attending it was barely perceptible, I could scarcely persuade myself the patient was secure from the small-pox. However, on his being inoculated some months afterwards, it proved that he was secure. This case inspired me with confidence; and as soon as I could again furnish myself with virus from the cow, I made an arrangement for a series of inoculations. A number of children were inoculated in succession, one from the other; and after several months had elapsed, they were exposed to the infection of the small-pox—some by inoculation, others by variolous effluvia, and some in both ways—but they all resisted it. The result of these trials gradually led me into a wider field of experiment, which I went over not only with great attention, but with painful solicitude. This became universally known through a treatise published in June, 1798. The result of my further experience was also brought forward in subsequent publications in the two succeeding years, 1799 and 1800. The distrust and scepticism which naturally arose in the minds of medical men, on my first announcing so unexpected a discovery, has now [1801] nearly disappeared. Many hundreds of them, from actual experience, have given their attestation that the inoculated cow-pox proves a perfect security againt the small-pox; I shall probably be within compass, if I say that thousands are ready to follow their example, for the scope that this inoculation has now taken is immense. An hundred thousand persons, upon the smallest computation, have been inoculated [vaccinated] in these realms. The number who have partaken of its benefits throughout Europe, and other parts of the globe, are incalculable; and it now becomes too manifest to admit of controversy that the annihilation of the small-pox, the most dreadful scourge of the human species, must be the final result of this practice."

The opinion expressed in the last part of the above quotation will not be taken with surprise by any medical man who has studied the subject of vaccination. It probably was not conceived in the mind of Jenner that quackery, superstition, ignorance, and dishonesty would combine to defeat the results which he predicted; neither will any one regard him as over enthusiastic in describing its prophylactic powers, when it is stated that within five years after giving his discovery to the world, six thousand persons, who had been previously effectually vaccinated, were inoculated with the poison of small-pox, and not one of them contracted the disease.

[To be continued.]

Corn Cures.—Professor Whelpley gives some interesting facts in "Notes on New Remedies" about corn cures. The sale of plasters and other applications for corns is a large business, and all of these preparations have as their active basis salicylic acid. It is combined with collodion and 9 to 48 parts,and painted over the corn; it is combined with rosin and balsam fir, with lanolin, 10 drachms of lanolin to 6 salicylic acid; with simple cerate, 1 of the acid to 6 of the cerate, and so on.

ARTIFICIAL FEEDING OF INFANTS.

VARIOUS SOURCES AND METHODS OF PREPARATION.

Milk, of course, is the natural food of the infant from birth, till at least one-half or two-thirds of its teeth are cut. The mother is designed to furnish this by Nature. When this fails, from whatever cause, the next resource is to produce milk-food from some of the healthy lower animals. The cow is the first to be pressed into service, because of its domesticity and usefulness in our present civilization.

The goat comes next. This milk-food differs in its component parts from that of human milk, and few infants can digest it unless it is prepared beforehand in some way. The "one cow's milk" selection has been much discussed of late, and has been decided that it oftens misleads; that a healthy herd furnishes us with reliable milk. Much effort has been made during the past two summers to obtain a milk-food for artificially-fed infants. The sterilization of cow's milk and the bottling of it at the dairy farm is quite a success. A sweet, clear milk at a reasonable price is thus furnished within reach of the poor and rich alike. It will keep for many days, and may be taken to sea on steamer, if one must travel with a young child or invalid.

To sterilize milk is now taught the nurse, since the bacillus of tubercles has been shown to be such an enemy to the cow. A plain, simple way of sterilizing is to put the quantity of milk desired into a fruit jar. Then put it into a boiler of cold water, and bring to boil for fifteen minutes. Test it as if it were a can of fruit. Boil all water used for diluting the milk, and add lime water before filling the nursery bottles. Throw away all remaining in the bottle after the infant has taken all it needs.

The clean can, the ability to sterilize milk, the plain bottle with several black rubber shields, will make artificial feeding of infants an easy matter in plain-living families ,which constitutes two-thirds of our population.

The more fortunate can have all the new sterilizers, and one cow's milk; but, with all the new ideas, the mother cannot dedicate to another the careful eye necessary to watch whether the body is thriving and not under-fed.

Let a heathy infant be carefully fed, and kept well protected from sudden changes from heat to cold; also kept free from excitement, it will pretty surely pass the teething time and hot summer safely.

But the delicate, nervous, badly-nourished infant will try the patience of the most experienced nurse, and exhaust the inventive genius of the physician to find a food to nourish it. Among the poor it is curious to notice how they rely upon condensed milk, and the children will thrive upon it. Space will not allow the discussion of the many kinds of infant's food upon the market, but we will draw the attention of our readers to the best, as much may be said in their favor when all else fail.—*E. J. Chapin Minard, in Popular Medical Monthly.*

A CONCLUSIVE THEORY.—A famous French doctor and professor of medicine contended that every disease was attributable to a process of inflammation. On dissecting one of his patients, not a trace of inflammation could be found. He explained the circumstances to his pupils as follows: "Gentlemen, you see that our mode of treatment was thoroughly effective. The patient is dead, but he died cured."

HYDROPHOBIA.

SYMPTOMS OF HYDROPHOBIA IN THE DOG.

There are no premonitory symptoms—such as pain in the seat of the bite, melancholy and irritability, febrile disturbance, and stiffness about the head and neck. The dog, when the period of latency is passed, becomes restless, dull, watchful, withdraws from its companions, choosing solitude, shunning the light; hiding in corners, or below chairs or other furniture; being fidgety, lying down, then jumping up again in an excited, unnatural manner; it has a tendency to rove about, and if possible to escape from its room or kennel, and wander about the country. At first the dog's power of recognizing people about it does not seem lost; indeed there are moments when the usual faculties of the dog, its affection and liveliness, seem greater than usual. There is a desire to lick anything cold, to rest the nose on a cold object, and to pick up stones, bits of wood, straw, etc. At this stage the tendency to bite is not observed, but as the disease advances the movements of the animal become unsteady; the eyes follow objects in a peculiarly staring manner; sometimes the dog will stare at some imaginery object, then rush forward, and bite at anything that may chance to be in his way, or even at the air, as if he were catching flies; cushions, straw, and other objects by which dogs are ordinarily surrounded, are tossed about; the animal scratches the ground, snuffles as if on the scent; the appetite is lost, but the thirst is considerable, and the *act of drinking* is performed *without much difficulty* during the early stages of the disease. At a later stage, however, swallowing is performed with difficulty, or is not performed at all, owing to the spasmodic constriction of the throat; but even then the animal has no dread of water, does not shrink at the sight of fluids, but, on the contrary, will plunge its muzzle deeply into it, and endeavor to drink with great avidity. The coat is staring, the skin tight on the ribs, and the belly tucked up. The dog occasionally vomits, the ejected matter being tinged with blood; there is a brownish coating on the tongue, the nose and mouth are foul and offensive, and there is generally a flow of saliva from the mouth.

The mad dog, or a rabid animal of any kind, brought into the presence of one of the canine species, exhibits great excitement, exasperation, and fury, with a desire to attack and destroy what seems the object of its hatred. The females of the canine species do not always lose their maternal affection; on the contrary, the young are attended to with great affection. In the course of a day or two after the first manifestations of the above symptoms, the characteristic signs become more marked; the desire to bite is greatly exaggerated; the pupil dilated; the conjunctivæ is red and injected; the eyes are alternately wide open with fury, and then closed in a dull but fierce manner. The forehead becomes wrinkled, and the looks of the animal are terrifying and repulsive; the presence of a living object excites the rage of the sufferer, causing it to spring at and endeavor to bite it. Any shining object will bring on a paroxysm of rage or excitement, and water, if the light shines upon it, will do the same; but if placed in a dark place, or where light does not shine, the dog will endeavor to drink with avidity. Intermitting with the excitement are periods of great prostration, the exhausted animal lying down in the quietest spot it can find, insensible to all surrounding objects. All at once, however, it springs up, and becomes greatly agitated; the excitement, rage, and agitation being always much greater when the animal is surrounded by noises and objects; when away from these things, in a quiet place, the fits of rage are not so great, sometimes scarcely observable.

The bark of the rabid animal is unnatural; it is husky, spasmodic, and more of the nature of a howl. In some cases, the nervous symptoms are those characterizing paralysis of the jaw, with inability to close the mouth; the lower jaw is dropped, the cavity of the mouth and its contents exposed, the tongue dry, and the buccal membrane of a brownish hue. This is the "*dumb madness*," thus called because the animal is unable to bark or howl. Rabid dogs have a tendency to eat filth; they have been known to eat portions of dead dogs, and to swallow hair, coals, earth, excreta of all kinds, and these remaining in the stomach present a characteristic *post mortem* appearance. A mad dog, when loose, will travel an immense distance in a short time, generally rushing at every thing that comes in its way, but preferring to attack other creatures than man, and finally endeavoring to return home, as if prompted by some instinct. The pulse is said not to be accelerated, nor are the respiratory movements much increased, except during the paroxysms; the bowels are constipated, and the urine is high-colored; the gait is unsteady, the tail droops, the head is depressed, the nose protruded; the fits of rage become shorter, those of depression longer; sight, scent, and hearing are much impaired; insensibility to pain, which is generally present from the earliest stages, is more and more manifest; and finally paralysis, particularly of the hind limbs, supervenes, and if not destroyed, the dog dies, an emaciated, repulsive object, the desire to bite remaining to the last. In the dumb form the ability to bite is lost, as well as the power to lap fluids. The exposed and protruded tongue is covered with a stringy, tenacious saliva; the desire to drink is even more intense than in the furious form, and attempts to lap and swallow become painful to witness. Squinting of one or both eyes has been observed; there are also abdominal pains in some instances,and an inflamed condition of the nasal cavities, larynx, and bronchial tubes. There is no tendency to harm and bite surrounding objects, and the dog dies from coma, exhaustion, and suffocation. Both forms of the disease terminate in death in from four to eight days. It is, however, reported that some chronic cases of rabies exist for an indefinite period.

The dread of water—hydrophobia—which has been looked upon by some as the diagnostic symptom of the disease, is absent in the dog. The desire for water is always excessive; there is inability to swallow fluids, hence a dog will plunge his nose deeply into water, lap it with avidity, but owing to the thirst being still unallayed, he will become greatly agitated, and is thus often thrown into a state of fury or of involuntary spasms.—*Williams' Veterinary.*

SLEEP AS A TREATMENT FOR INVALIDS.

BY DR. A. F. PATTEE.

"The death of each day's life,
Sore labor's bath,
Balm of hurt minds."

Sleep is but another form of food, and is not less essential than the food we take into our stomachs. No matter what the disease, we know its malignancy has yielded when the periods of long, sound, natural sleep advance. As a prophylaxis, sleep ranks among the most important. Only through sleep can the nerve centers relax and recuperation begin. During the night of healthy sleep the scavengers of the body are working noiselessly with their implements of conveyance, preparing for the morrow's labors. Darkness is the period of perfect rest. Until the human mind discovered the means of substituting by artificial light that of the sun, mankind retired with its declining rays. Children—of whom it has been said their life, as it develops, give a fair representation of the lines of human progress—naturally seek repose at sunset. Nature herself at this time seems to be hushing all animated life to sleep upon her bosom. How different is man under the influences of civilization. Insomnia and neurasthenia are the terrible beasts born of his enlightenment, lashing their victim night and day until he would willingly offer his soul in exchange for the sound, healthy sleep of the barbarian. Insomnia is to-day the most familiar foe we meet, so prolific in its capacity that without exaggeration or fancy we can ascribe to it the common beginning of a vast part of our chronic ailments. It has come to have an individuality, and is no longer a symptom only. One of the common causes of this is the artificial light which is found in the majority of sleeping rooms during the night, not only of lamps and gas, but the rays of the electric light stream through our windows. Although the eyes may be closed, we are conscious of the changes in its flickering glare. The patient becomes accustomed to it, and feels that he cannot have it excluded, and so we have added another to the "necessities of civilization." Not the sleep to be had during the day, but the repose at night must be encouraged in the patient. Discipline will do much toward capturing this sly visitor, other things being equal. The patient must retire early. He should not exercise his brain by reading or talking after 7 o'clock. In summer he should be in bed for the night by 8 o'clock, and in winter by 7 o'clock. In the summer he should rise in the morning between 5 and 6 o'clock, and from 7 to 8 o'clock in the winter. The room should be of a proper temperature, so he experiences no chill in bathing or dressing. The nightdress of the patient should be of sufficient thickness to protect the body and allow perfect freedom of movement and position without risk of chill. The flannel undervest worn during the day should be removed at night, and one of lighter weight substituted. Bathing before retiring has a tendency to induce sleep. It should be accomplished in a manner the least calculated to task the patient's strength. If the temperature is normal, a wet cloth passed over the body and wrung out in fresh water may take place of the bath. Rub the skin well afterward. If the feet are cold, they must be made warm and kept so. The means to be employed for this purpose are very numerous. Among the best are the wrapping each foot in flannel separately, and the hot-water bag (but the old-fashioned hot soapstone is better). These are only palliative. For the removal of this condition there is nothing equal to manipulation, done after the following: Begin at the nape of the neck, placing the ends of the first and second fingers firmly on each side of the spinal column, carrying them firmly and evenly downward its whole length; repeat this several times. After this rub well the soft hollows in the ankles each side of the heels and around the joints. The patient will soon begin to feel the blood rushing into his feet, and ere many nights he will have the satisfaction of seeing a healthy circulation established in these parts.—*Journal of American Medical Association.*

Cigarette Statistics.—The Boston *Herald* has been gathering some statistics in regard to the manufacture of cigarettes during the last fourteen years, which are of special interest in view of the recent agitation in the State Legislature for a law entirely prohibiting their sale in Massachusetts. From a manufacture in 1878 of less than 240,000,000 a year in the United States, the number has increased, until now the total is almost 3,000,000,000 per year, the figures for all the years since 1878 showing an almost steady growth, notwithstanding the laws that have been passed in many States restricting the sale of tobacco in this form—such restrictions being chiefly in the form of laws forbidding the sale of cigarettes to minors. From the rapid increase that has been shown, it is to be feared that such restrictions have been of the kind that do not restrict. If the statistics of the many who have died from throat and lung troubles, and the physical wrecks, all brought on by the pernicious and odious cigarette habit, were known, it would be found that they kept pace with the increased production of this curse of America!

Pineapple Juice.—Some time ago the late Dr. V. Marcano of Venezuela, noted that pineapple juice contained a proteid-digesting substance. No careful study of this fact was, however, made by him. Recently, Prof. R. H. Chittenden, assisted by Messrs. E. P. Joslin and F. S. Mears, have investigated the matter fully, and announce facts which are likely to give to the succulent pineapple a prominent place in dietetics Pineapple juice is an acid fluid of specific gravity of 1.043. An ordinary pineapple yields 600 to 800 cubic centimeters of it. The proteid-digesting power is quite remarkable in its intensity. Three ounces of the juice will dissolve ten or fifteen grains of dried albumen in four hours. The action takes place in acid, neutral, or even alkaline media, thus resembling trypsin more than pepsin. It acts best in neutral solutions. The pineapple juice contains also a milk-curdling ferment. A well-known meat powder is said to be prepared with the help of pineapple juice.—*Medical Record.*

Thucydides on the Grip.—E. W. Bishop of Norwich, who is a student in Amherst college, has discovered by reading Thucydides, Book II, that the grip prevailed in Greece about 470 B. C., and it was by far more violent and more frequently fatal in its effects than to-day. In the book named there is an entire chapter on the disease and all its symptoms, which are minutely described, and are like those noted in these times. It is described as being a queer and troublesome malady, and the mental dejection of its victims was said to be the most distressing feature of the disorder.

Legible Prescriptions.—The Austrian Minister of the Interior has recently issued an ordinance that the burgomasters of all communes must exercise strict supervision over the medical men practicing within their jurisdiction in the matter of legibility of prescriptions. They are charged to see that every prescription is clearly and legibly written in all its parts, so that there may be no doubt as to the remedy, the dose, or the signature.—*Medical Age.* A faithful rigor in the enforcement of this excellent ordinance would compel many doctors to patronize the writing master.

Vinegar.—The repulsive and sometimes dangerous impurities of vinegar, with its virulent acetic acid, have suggested to many of the best caterers the substitution of lemon juice—an excellent practice for imitation, avoiding at once both the wriggling eels and the unwholesome acid.

HYGIENIC.

WATER SUPPLY AND PUBLIC HEALTH.

BY ALLEN HAZEN, LAWRENCE, MASS.

[Read at the nineteenth annual meeting of the American Public Health Association.]

During the last few years, there has been accumulating an overwhelming amount of evidence that typhoid fever is often transmitted from one person to another by drinking-water. I need not refer to the experience of foreign cities, but only to mention epidemics, during the past year alone, at Albany, Wheeling, Duluth, Lowell and Lawrence, besides many others of less extent. In a part of these cases, at least, most thorough investigations have been made, showing beyond question that the excessive death rates were due to the pollution of the public water supplies.

Investigations have also been made, both in England and in India, showing that Asiatic cholera is most frequently conveyed by drinking-water, and we have to consider what part our water supplies might take in its propagation in the unfortunate event of its gaining a foothold on our shores.

It behooves us, then, to give this subject most careful consideration, with a view to understanding the exact method of transmission, and, if possible, to find measures which will secure relief.

Both typhoid fever and cholera are caused by the growth within the body of particular species of bacteria, which are most frequently taken into the system through the mouth, either with the food or drink, and it is the presence of these particular germs in a water which gives it its power of causing disease. A water may be muddy, or hard, or discolored by organic matter, it may even be sewage-polluted and swarming with germs; but if it does not contain the objectionable species, its use will not cause the diseases in question.

At first sight it would appear that bacterial examination for the hurtful forms should give the true criterion of the character of a water. The difficulty of the search for pathogenic organisms, however, has greatly limited this line of work, and only confirmatory results have thus far been obtained; the bacteria have not been found until after their presence has been indirectly proved by an excessive number of cases of typhoid fever among the users of the water, which could not be ascribed to any other cause. Improved methods are being suggested for the detection of the typhoid bacillus, and it is quite probable that in the future we shall have methods at our disposal, far more satisfactory than those which we have been using.

But when we have a greatly improved method for the detection of the bacillus, how much will it help us? That the fever is due to water supply has been amply proved in numerous cases, by eliminating other possible causes, and by showing that those who drank from one water supply suffered, while their neighbors, with other water, remained free. Now when it is once established that a water supply causes typhoid fever, the number of cases among the consumers of the water is a far more satisfactory index of its condition than any laboratory tests, however perfect. In the case of proposed water supplies not yet introduced, the death rate test cannot be applied, and we must have recourse to other methods. But supposing it were possible to show absolutely that disease germs were absent from a given river, no proof has been given that they will be absent a month hence, under somewhat changed conditions of temperature, volume of water, etc. The Merrimack river water often produces typhoid fever among those who drink it, but not always; there are times when its influence is scarcely perceptible; at other times it is capable of causing an epidemic. Aside from any analytical imperfections, the bacterial methods cannot guarantee the future of a water from its present condition, and as it is the future in which we are mainly interested, we must look for other sources of information.

So far as we know, the germs of communicable disease are absent from unpolluted waters; they are introduced only by sewage. Waters which are absolutely free from the product of human life are, in general, safe for drinking. It is our first problem, then, to determine whether a water is sewage-polluted. This is done by inspection of the water-shed, or by chemical analysis, or by both. With surface waters, inspection of the water-shed is usually of the first importance. The sight of Lowell's sewers is better proof of the contamination of Lawrence water supply than any amount of chemical or bacterial analysis. In this case, analysis is useful in measuring the amount of pollution, and in showing any purification which may have taken place. In the case of ground waters, inspection of the water-shed is often impossible, because its exact location is unknown. In these cases, thanks to the great progress which has been made in the methods of examination, we may depend with confidence upon chemical analysis to show us the past history of a water. The analysis is especially satisfactory when the normal chlorine is accurately known. The normal nitrate is also useful in this connection. In Massachusetts, strictly unpolluted ground waters rarely have as much as 0.02 part nitrogen or nitrate per hundred thousand, and as this does not depend upon proximity to the ocean, it can be used where the normal chlorine is unknown.

If we can show that a water is absolutely free from sewage, we may safely infer the absence of pathogenic germs, although, as yet, too little is known of the diarrhea and other complaints which have been sometimes attributed to water quite free from sewage. The adaptability to public use of a sewage-free water depends mainly upon its physical characteristics—turbidity, color, odor, taste and hardness. On these points, the public is a competent judge of what is required; the chemist makes accurate comparisons between different waters, but it is for the consumers to say what is satisfactory to them.

If we find that a water-shed is inhabited, or if the chlorine and nitrates are above the normal, then we must conclude that the water is polluted, and other data must be obtained before we can decide upon its quality. The possibility of securing water entirely free from sewage contamination is rapidly becoming less. With increasing population, water-sheds of sufficient size are fast becoming settled, and in those portions of the country where the entire surface of the land is suited to human occupation, and especially in the neighborhood of large cities, their retention for water supply is practically impossible.

We are thus forced to face the problem of so managing an inhabited water-shed, and the water derived from it, as to secure a water supply which, although it has been polluted, is without danger to the public health.

The question now to be considered is, whether pathogenic germs could survive from the point of contamination to the point of consumption. It is not enough to show that they are not now present in the water; it must also be shown that they could not be present under any possible, or at least probable, conditions. It is our greatest problem, to determine through what conditions pathogenic germs can survive.

In its simplest form, we have the case of sewers emptying directly into a water course which is used for water supply. There has been a theory current that rivers have a power of purifying themselves, and that when the volume of sewage is not too large, in comparison with that of the water into which it flows, the great dilution and the oxidizing action of the air will soon restore the river to its original purity. Lawrence, Lowell, Albany, and other cities, knowing that their water supplies were polluted, have depended upon these agencies to purify them, and they have depended in vain. Their factors of safety were too small—the Merrimack and the Hudson were not large enough; the distances and times were too short; the germs survived—and increased death rates, amounting to epidemics, were the results. The experience thus dearly obtained, with the loss of hundreds of human lives, has taught us lessons far more valuable than any laboratory experiments, however interesting the latter may be. We have learned that extreme dilution, even so great that the most delicate chemical tests do not with certainty show the presence of sewage; that running for a few miles in a large and well aerated river; that storage in a reservoir capable of holding one or two weeks' supply of water; and that the passage through miles of iron pipes under pressure—that each and all of these conditions are inadequate to render a water safe.

[To be continued.]

VENTILATION OF CHURCHES.

HOW IT CAN BEST BE DONE.

That churches should be so ill-ventilated and badly heated as to become sources of danger to the assembled worshippers' is at once hostile to the spiritual as well as to the physical interests of the community. All sanitarians are aware that the air of chapels and churches often becomes distinctly injurious before even an hour of the service has elapsed; many have marvelled that so little care and attention have been bestowed at the outset to construct churches upon even the most commonplace principles of hygiene. The gas—which is almost invariably placed low down over the heads of the people—owing to the large amount consumed, aids materially in the air pollution. No provision is made to supply fresh air which has been previously warmed, and hence, for the greater part of the year, the inevitable old lady or gentleman who is possessed of a special faculty of detecting an amount of air movement which an anemometer would barely be sensitive to insists upon all ventilating openings (often only doors and windows!) being shut. Further, so as to make matters as bad as they possibly can be, and so as to insure that air shall not be induced to enter by any circumventive tactics, no means of outlet (or at least very inefficient ones) are provided for the escape of foul air. It would have been easy to achieve good results in the first instance, since the matter only entails the application of a few measures which are well understood and often adopted; but after construction the best remedial steps involve considerable difficulty and expense. Provision should be made in every case for warming the entering air, preferably by hot water pipes, since the building itself is best heated by these means; and the warm air may be best admitted by small gratings at the bottom of the walls near the floor, and through perforations in the flooring of the different passages. Gas should be placed high, and not used to heat the building, and the jets might be disposed in rings, around openings leading directly to the external air, so that the heat generated may be utilized as an agency for extracting air vitiated by the congregation, while at the same time the injurious products of gas combustion are at once removed. Extraction shafts leading into the furnace flue, and having their openings well above the gallery level, might also with advantage be placed in each corner of the building.—*Brit. Med. Jour.*

MISCELLANEOUS.

WISE SAYINGS WELL SAID.

Regimen is better than physic.—*Voltaire.*

He that dies pays all debts.—*Shakespeare.*

Spices smell best when bruised.—*Bogatzky.*

Poverty is hard, but death is horrible.—*Spurgeon.*

Bad temper is its own scourge.—*Charles Buxton.*

Where necessity ends curiosity begins.—*Johnson.*

Keep cool and you command everybody.—*St. Just.*

Temperate anger well becomes the wise.—*Philemon.*

Agreeable advice is seldom useful advice.—*Massillon.*

It is double pleasure to deceive the deceiver.—*Fontaine.*

How strangely easy difficult things are.—*Charles Buxton.*

The thirst of desire is never filled, nor fully satisfied.—*Cicero.*

Time and adversity are two powerful destroyers.—*A. de Musset.*

The first step in debt is like the first step in falsehood.—*Samuel Smiles.*

The greatest difficulties are where we are not looking for them.—*Goethe.*

Our deeds determine us, as much as we determine our deeds.—*George Eliot.*

Keep a Stiff Upper Lip.—The less complaining a wronged man does, the more people will hate the man who wronged him.

NEW BOOKS.

Surgical Handicraft: A Manual of Surgical Manipulations, Minor Surgery, and other Matters Connected with the Work of House Surgeons and Surgical Dressing. By Walter Pye, F.R.C.S., with upwards of 300 illustrations. First American from the third London Edition. Revised and edited by T. H. R. Crowle, F.R.C.S. Cloth, $3.50. Leather, $4. 8 vol., 600 pages. E. B. Treat, Publisher, 5 Cooper Union.

The *New York Medical Journal* speaks of this new work as follows:

The subjects cover the whole range of surgery. The book is an exceedingly good guide for those for whom it seems to be intended, and it furnishes not only them but the general medical practitioner with an excellent book of reference for any emergency which may arise. The matter is well chosen, the style is clear and pleasant, the illustrations are many of them new, and the methods of treatment described are fully up to date. It is different in its scope from any book on minor surgery with which we are acquainted, and it compares favorably with them all.

TENTH ANNUAL REPORT OF THE STATE BOARD OF HEALTH OF NEW HAMPSHIRE FOR 1891. Compiled by Irving A. Watson, M.D., secretary.

This is one of the most practical reports that comes to us. Aside from matters of local interest, it always contains valuable essays on sanitary matters, as it does this time. Among these may be specifically mentioned a brief essay on "Chlorinated Lime as a Disinfectant," by Dr. John J. Berry; "Water Supply and Public Health," by Allen Hazen, and a most valuable and painstaking contribution on the "Historical and Other Facts Regarding Vaccination," by Irving A. Watson, M.D. We shall reproduce some of these articles.

MESSRS. P. BLAKISTON SON & CO., Philadelphia announce an important text book: Materia Medica, Pharmacy, Pharmacology, and Therapeutics. By Wm. Hale White, M. D., F. R. C. P., etc., physician to, and lecturer on Materia Medica at, Guy's Hospital; examiner in Materia Medica Royal College of Physicians and Royal College of Surgeons, etc. American copyright edition, edited by Reynold W. Wilcox, M. A., M. D., professor of Clinical Medicine at the New York Post-Graduate Medical School and Hospital, assistant visiting physician Bellevue Hospital, etc. To be printed in one compact, handy volume.

WORTHINGTON CO., 747 Broadway, New York, announce for immediate publication as No. 14 in the Rose Library: Gil Blas of Santilane. By A. R. Le Sage. Translated by Tobias Smollett, with illustrations by R. de Los Rios and others. 12mo. Cloth, $1.00; paper, 50 cents.

A new and exceedingly attractive edition of the most widely known of all European works of fiction, a book to be studied as well as to be enjoyed. Van Laun in calling attention to Le Sage's masterpiece, speaks of the vivid character painting, the penetrating observation, the lavish inventiveness and the vivacity of the narrative in Gil Blas. Le Sage's humor has body as well as brightness, breadth and geniality, besides shrewdness and point. Gil Blas tells his own adventures, spares nothing and nobody and even his own short comings are exposed with sparkling drollery and vengeful frankness.

They also announce for immediate publication as No. 1 in their Fair Library: Love Knows No Law. By Leon de Tinseau. Translated by Camden Curwen, 1 vol. 12mo. Paper, 25 cents.

A French story of great beauty, written with surprising strength and fire, deeply interesting throughout, presenting imaginative pictures in which breadth and vigor of treatment are harmoniously blended with exquisite delicacy of detail.

WISE IN THEIR OWN CONCEIT.

"See, the conquering hero comes," hummed the blithe drug clerk as he made place on the shelves for another big jar of quinine and a row of bottles containing assorted sizes of strychnine pellets. "This is the sort of April weather, balmy and seasonable," he communed cheerfully with himself, "to send my fellow-citizens cantering in here for their spring tonics; and these are the old stand-bys they want to live and die by."

The clerk was right. It is just the sort of weather to set many persons to dosing themselves and, unfortunately, that habit is one which grows upon its victim—like yawning in church. Once let a man get the notion that he knows how to doctor himself and, in nine cases out of ten, he will be tinkering at his internal economy all the time, and the more he tinkers the worse he gets out of repair. If he gets into trouble with a neighbor about a measly shoat, he hires a lawyer; if his old silver watch needs fixing, he takes it to a watchmaker; but when it is merely a question of saving his life, he undertakes to attend to the job himself. And, of course, he "makes a poor fist" at it. His trouble is that he does not know enough about medicine to start rightly. He follows the delusive course of treating his symptomatic ailments as so many distinct diseases—battling with effects, instead of eradicating causes—the pathological blunder of the centuries, which the medical profession are now growing away from, but which has pretty nearly as firm a hold upon average humanity, even yet, as in the days when everybody believed in Prester John.

So, in the budding springtime, when the man who "knows just what to do" finds himself growing a crop of pimples and boils, he puts salve on the former and shoemakers' wax on the latter, and is content; his head aches, so he takes brom. pot., or val. amm., or has a Faith-curist paw his cranium; his liver strikes work, and he sends down a lot of calomel to bring it to terms; for the diagreeable little chills that run over him and his sudden flushes of heat, he knows he needs quinine; his nerves are toneless as a wet fiddlestring, so he must have a little strychnine—and so he goes on. His methods bring to mind a bright idea of the "Minister of Fomento" of a certain South American republic. It was reported to the minister that a storm had beached a huge and costly dredge owned by the government, in such a position that the teredos were eating away

BUFFALO LITHIA SPRINGS.—HOT SPRINGS.

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WHAT THE HOT SPRINGS PHYSICIANS SAY:

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"My experience in the use of BUFFALO LITHIA WATER is limited to the treatment of **Gout, Rheumatism** and that hybrid disease, '**Rheumatic Gout**' (so called), which is in contradistinction to the **Rheumatoid Arthritis of Garrod.**

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"Hence it is a **prophylactic,** *as well as a* **remedy in Nephritic Colic,** *and forming* **Calculi** *when due to a redundancy of* **Lithic Acid.**"

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the wooden hull, having entered it above the copper sheathing, and that the salt water had got into the machinery and was destroying it. "But," he demanded, "does not much still remain above the water?" "Oh! yes. The cabin and the long arms, with their big chain and bucket." "Very well. Paint the cabin green, the arms red, the chain and bucket black. It will look very nicely. What more do you want?"

The minister's scheme was no more futile for the saving of the dredge than are the dosings fo symptoms in restoration of the sick man's health. Practically, all the ailments rife in springtime are kindly Nature's gentle reminders that our ways in the winter past have not been altogether as her ways, that we have got our vital machinery clogged, numbed, weakened, overweighted with effete matter, and that we must either take prompt and effective measures to relieve it or suffer the consequences in severe sickness, and perhaps death. Our only recourse is in the radical measure of employing a potent alterative; one that will expel the accumulations of effete matter from the vital current, restore energy and efficiency alike to the digestive, assimilative and circulatory systems, and through them to the nervous and respiratory as well. The best medicine known to curative science and one which can be confidently relied upon to do this, is Ayer's Sarsaparilla, the incomparable therapeutic value of which has been matter of established popular knowledge all over the world, during half a century. This is the only medicine for a sensible man to take in the springtime.

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We have so frequently explained to our readers what *Brut* means that it seems hardly necessary to do so again. Lately there has been a steady increase in the demand for this peculiar champagne in England and the United States. Physicians have found that this brut wine, though not quite so pleasant to the taste, possesses all the peculiar medicinal properties of champagne without the drawback of artificial sweetening. It goes without saying that only the best cuver of the original unmanufactured wines can be used for brut. Among the best of these is the grand vin brut of Veuve Theophile Roederer & Co., of Rheims.

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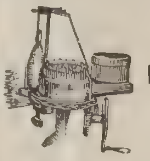

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CONTENTS.

Page
Care of Sealskin 194
Chlorinated Lime 197
Cleanliness 198
Danger of Celluloid 199
Editorial 193
Johnny Cakes for Europeans—As It Should Be—Where do You Advertise?—Adulterated Honey, Maple Syrup, Molasses and Candies—The Government Aiding the Adulterator—Whose Fault Is It?—Result of Educating the Consumer.
Good Whitewash 195
Historical Facts Regarding Vaccination 196
Household 194
Hygienic 197
Ice Cream 195
Medical 196
Medical Witnesses 196
Miscellaneous 199
Mussels 194
New Books 200
Oleomargarine 194
Packers' Fight 199
People who Lack Salt 196
Punishing Adulterators 195
Take Time to Eat 196
Water Supply and Public Health 198

"JOHNNY CAKES" FOR EUROPEANS.

We learn from a late Washington despatch that Senator Paddock submitted as an amendment to the Agricultural Appropriation Bill a provision appropriating $25,000 for continuing and enlarging the education of people in Europe to the use of American maize for food purposes. Last year Congress appropriated only $2,500 for the purpose, and Colonel Charles J. Murphy, special agent of the Agricultural department, who has for some years been showing Europeans how to make "Johnny cakes," "flapjack," "mush and corn bread," has had a hard row to hoe. Senator Paddock has received a number of letters in the past few days from prominent merchants and Boards of Trade, urging him to secure a sufficient appropriation to enable the Agricultural department to carry forward the word of introducing our corn products into the markets of Europe, among them being letters from Thurber, Wyland, & Co., of New York, and Evan Thomas, president of the New York Board of Trade. Both letters speak from actual knowledge of the splendid field Europe affords for disposing of our surplus corn, provided the army of agents be increased from one man, Colonel Murphy, to the proper number, to cover the ground in a more rapid manner. They state that if a proper appropriation had been made two years ago our exports of corn and the products of corn would have been so much larger this year that they would have made a very appreciable difference in market prices. Colonel Murphy, who is now making corn cakes, corn puddings and other articles of food from corn in the streets of Paris, Berlin, London, and other large cities of Europe, has written the Agricultural department an encouraging account of the manner in which his labors have been received, and has pictured a magnificent foreign market for every grain of our corn at a much larger figure than it is receiving to-day if the opportunity is only embraced and the field worked up properly. He says the only form in which our corn is known on the British Isles as a food article is corn starch; that the prejudice against corn meal is so strong in England that wherever it is sold it is under the brand of something else; that our corn in any form in most places in Europe is considered simply an article for horse and cattle feed. However, he has been very successful wherever he has gone in eradicating that impression. Wherever corn meal has been bolted and sold for flour or starch it has been well received and is popular. But the process of bolting or manufacturing into starch has made it expensive, taken together with the fact that it is not well known, and there is not a heavy demand for it. Thus, while the intent is to furnish a nutritious and cheap breadstuff for the artisan and laborer, an article has been produced which is only demanded by those who can afford luxuries. The thing needed is education, to eradicate the prejudice and teach the common people how to use corn. Such a thing as canned green corn is known to a very little of Europe. It is believed that, with an expenditure of $25,000 to $50,000 a year, for three or four years, a market will be created in Europe for all of our surplus corn, and the Senate intends to force this fact upon the House so thoroughly that the latter cannot refuse to concur in the appropriations for enlarging our corn markets.

AS IT SHOULD BE.

A cotemporary under the heading of "Better Goods Demanded," says:

"If any lesson can be learned from the apparently dry and curt utterances of the market reporter, it is that the American consumer must and will have the best goods that his means will allow him to purchase. The choicest grades of coffee are already out of the importers' hands and indeed scarcely quotable at the ports of entry. The finest grades of teas, fruits, canned, dried and fresh fruits, dairy products, fish and groceries, show an undiminished inquiry and advance in price, while inferior grades are neglected, or even show a sharp decline. Antiquated machinery and old-style implements, dingy millinery and obsolete dry goods are neglected in the warehouses, or on the shelves, until the dealer grows desperate and clears off the stock which is an eyesore and a damage to his business. Cheap cigars, baking powders, manufactured coffees, adulterated spices, 'extended' white lead, weighted silks and cottons, cast-iron tools, paper-soled shoes, and a long list of inferior goods in all lines, are losing their once noticeable prominence, and costly advertising 'gift enterprises,' and 'cash distributions' have scarcely power to galvanize the dying demand into fresh life. even in the most remote and quiet rural districts. Neither does this evidence a tendency toward undue extravagance, for increased production and competition have supplied the American market with huge quantities of food, clothing, utensils, furniture, arms and tools, whose quality and economy are much superior to those of the immediate past, and enabled the consumer to consult not only his pleasure and taste, but that higher economy which recognizes that an article is often nominally cheap and really dear at the same time."

This is as it should be, and what the AMERICAN ANALYST has been striving for.

WHERE DO YOU ADVERTISE?

"Doubtful goods are never advertised in reputable trade papers. Paste this in your hat."

"It's the character of the customers. not their number, that counts. Some eighty-acre farms produce more than an entire section of land."

ADULTERATED HONEY, MAPLE SYRUP, MOLASSES AND CANDIES.

The United States Department of Agriculture, Division of Chemistry, have just published another bulletin, giving the results of analyses made by chemists all over the country of honey, maple syrup, molasses and candies. The report is an astonishing expose of the dishonest methods of otherwise respectable business houses in labeling adulterated goods as "strictly pure" or "warranted strictly pure" and in some instances even positively guaranteeing the goods not to contain the very adulterants found. We shall publish an abstract of these reports in our next issue.

THE GOVERNMENT AIDING THE ADULTERATOR.

From Bulletin 13 of the Department of Agriculture we incidentally learn that on July 18, 1882, the United States Patent Office granted a patent to Josiah Daly of Madison, Ind., for an invention by which saccharine matter can be impregnated with an extract of hickory bark so as to give it the flavor of maple syrup. As the object of this invention is clearly to sell an ordinary sugar-syrup thus artificially flavored for maple syrup, it is lending the whole power of the government to enable a man to sell a fraudulent maple syrup. So far the patent law is at fault and should be so amended as to make it unlawful to issue a patent for any invention which is calculated to perpetrate a fraud upon the consumers of food products.

WHOSE FAULT IS IT?

A correspondent of the *New England Grocer* writes to that paper:

"I am in favor of *pure* goods, but when a *rival* can sell compounds at exactly the price one has to pay for pure goods, what can a merchant do? He must do as I did a year ago—put in both pure and compounds. Perhaps he will find as we did that the pure lay on the shelf while the compounds sold right along every day, and the second, third and fourth sales were made."

On which the editor of that journal remarks:

"It demonstrates that the consumers are as much responsible, and more too, than the dealers for the sale of compounds. If the grocer tells the consumer the facts in the case and the consumer prefers the cheaper compound article, who is the one at fault? Certainly not the grocer. The trouble is, the mania of cheapness is upon the people, and the dealer, to succeed, must cater to it. The consumer, not the grocer, is mainly responsible. The 'get something for nothing' idea is altogether too prevalent, and those who are victims of the mania have only themselves to blame if they get 'nothing for something.'"

Exactly what we have so often said. People who think they are saving money by buying compounds because they are cheaper may learn sometime or other that they are really throwing away their money. The best is none too good, and is in the end the cheapest.

RESULT OF EDUCATING THE CONSUMER.

The average daily paper with the best intentions in the world too often misrepresents the dealer in foods and groceries as a being especially prone to adulterate and extend his commodities. Undoubtedly, this is sometimes the case, says *The Northwest Trade*, and we will never hesitate to condemn such abominations and their makers. But it is a fact that the trade, as a whole, has long since realized the truth that such goods are a damage to the jobber, the retailer and the consumer alike. The American people demand first-class goods, and soon detect and refuse to purchase anything which is not genuine and perfect in its way. A recent report of the dairy commissioner of New Jersey shows that out of 212 samples of lard collected by him and analyzed, only twenty-two were not pure. Sixty-five samples of cream of tartar showed only nine adulterated, and of twenty-two samples of ground spices all were found to be of a fair grade, with no trace of foreign admixture. We, therefore, commend to many of our exchanges greater care in reproducing or quoting ancient and chestnutty utterances in regard to sand in sugar, beans in coffee, black rice in pepper, marble dust in flour, Indian meal in cinnamon, and the like, as these abuses belong to the old times when trade papers were not, and competition had not educated the people to the present standard of excellence. In fact, adulteration of goods is far more prevalent in the old world than in the new, and especially in countries where the press is not in close and constant touch with the daily life of the people.

Dr. J. A. McDonald of Chicago, has made the interesting announcement that strychnine is after all the only real cure for drunkenness. This is unquestionably true, if the dose be sufficiently large.

HOUSEHOLD.

MUSSELS.

Of minor shell fish mussels are among the most popular with certain classes of society, but lately they have taken a high place in the rich man's bill of fare. The following recipes are some of the latest introductions: 1. Put as many mussels as you require into a bowl. Season the fish with salt, mace, cloves, ginger, and nutmeg powdered small and well mixed. Put into a frying pan some clarified butter or lard; make it very hot, then lay in the mussels and fry them quickly so that they do not burn. When about three-quarters done, pour off the fat, and supply its place with white wine, the liquor of the fish, one large onion sliced, two anchovies, some shred sweet herbs, chopped parsley and a little nutmeg. Add the yelks of four eggs beaten up with some of the liquor. Dish with sippets of toasted bread, pour the sauce thereon, and garnish with thin slices of lemon. 2. Boil the mussels in vinegar and water with some lemon-peel, one or two bay leaves, pepper and salt. When done, cover the fish with a sauce made of melted butter, a tea-spoonful of the essence of anchovy, and a little cayenne and vinegar. 3. Dust the mussels well with flour, put them in a Dutch oven to roast, and baste them well with butter. When done enough, pour over them some oyster ketchup, and garnish with barberries. 4. Fry the mussels until of a fine brown color with onions, after which, make a stew with white gravy, a little curry powder, some butter, salt, flour, and three or four tablespoonsful of cream. Cayenne may be added if the powder is not piquant enough. Serve boiled rice in a separate dish. Mussels salted for a day or two, then fried and eaten with egg sauce, make a very good dish.

Pickled mussels are prepared thus:

1. To three quarts of water put one quart of old strong beer, a handful of salt, and double the quantity of common salt, one ounce of ginger, two of black pepper, one of cloves, and one of Jamaica pepper. When the liquor boils, put in the mussels, and let them remain a night. Next day put them in a quart of the strongest vinegar and a very little salt. Cover close with strong paper and keep them for use.

2. Put the mussels into a stewpan, dust them with caster sugar, pour to them their own liquor well strained, and set the pan on a gentle fire for five minutes without allowing it to boil. Pour off the liquor into another stewpan, and add to it double the quantity of good vinegar, with some ketchup, cayenne, lemon-peel and salt. Boil the whole for a quarter of an hour; then dust the mussels again with sugar and salt finely powdered; after which place them one by one in a stone jar. When cold, strain the pickle over them, and cover the whole closely with bladder and leather. They should be served up in rows, and garnished with slices of lemon.

Stewed mussels are excellent. Wash them in several waters, put them in a stewpan and cover them close. Let them stew till the shells open, then pick out the fish, and examine under the tongue of each, to see if there be a small crab and, if there is, throw it away. Pick off likewise the tough membrane under the tongue. Then put the mussels into a saucepan, adding to every quart of fish half a pint of the liquor strained through a sieve. Put in a few blades of mace, a piece of butter rolled in flour, and stew them gently. Lay some toasted bread in the dish, pour the mussels on it, and serve them up.

Pressed mussels are equally good. Boil some mussels in vinegar and water, and when they are done put them in a small cheese vat. Press them for a day, then lay them in a round dish. Pour over them clarified butter or beaten egg until the mussels are completely hidden. If covered with butter set them aside to get quite cold, if veiled with beaten egg put them in the oven till the custard is set. To be served cold, garnished with slices of lemon.

THE CARE OF SEAL SKIN.

It is said with truth that the moth which exterminates does not enter seal skin; this is quite true, but in his place comes an insidious little worm which eats his way through and is a hundred times more objectionable. He is the result of dirt. You look indignant, yet many of you put your seal coats away while they are absolutely dirty. Now, the proper way to do is to get out your coat, shake it thoroughly, hang it on the clothes-line and beat it until not a particle of fluff will come from it, then let it sun for half the day; after this fold it carefully, not doubling it over, but allowing it to lay out its full length; then sew over it very closely, coarse muslin; over this pin heavy sheets of newspaper; then having lined your box with newspapers lay in the queer-shaped package, cover it with newspapers, put the lid on, and to be sure that it is air-tight, tie it with a good strong cord, mark what is in the box and put it in a dark closet. Use newspapers in preference to any other kind. By putting your coat away so that it is air tight, in utter darkness and thoroughly clean, it will come out when you need it as good as new. For the trimmed coats a somewhat more elaborate arrangement is necessary. Of course, the trimming must have a special cleaning and you must be sure to literally bang out all the moth eggs in it, if any are there. For if you put a coat away in which these tiny eggs are, you might just as well count it as eaten up, for they will hatch, and your fur trimming will be greedily absorbed by them.—*Ladies' Home Journal.*

OLEOMARGARINE.

THE ARTIFICIAL BUTTER INDUSTRY IN THE UNITED STATES.

Mege Mouriez while investigating the subject of milk and its productions noticed that cows which had been deprived of food continued to give milk, which milk continued to yield butter. He inferred from this that the fat of the milk was changed to butter. In 1869 he instituted a series of investigations at the suggestion of the late Emperor Napoleon III., to make a substitute for ordinary butter from the fat of animals. He succeeded in making an excellent substitute, by extracting the oleine from fat and churning this with milk and water, to which annatto was used for color; the mass was subsequently salted and the resulting product constituted a palatable butter substitute.

Nothing prior to the patent to M. Mege, December 30, 1873, was patented in this country which could properly be termed "artificial butter," that is, where natural fat was subjected artificially to processes analogous to those which it undergoes in the elaboration of the cow's fat through her cellular and mammary tissues, and at the necessary temperature. Common butter had been compounded with foreign materials like the yelk of eggs and fresh milk to improve it, and a patent to this effect was issued to Mrs. D. H. Gregory, September 10, 1867, but this, although amounting to an artificial product, did not constitute "artificial butter." Other artificial products, prior to the Mege patent, are described by H. W. Bradley, January 3, 1871, and A. Paraf, April 8, 1873. The Bradley product was merely a mixture of beef or mutton suet, vegetable or fixed oils, and hog's lard, and was simply an attempt to make a suitable substitute for lard from the grosser fats. The Paraf patent was a step in the direction taken by Mege, but did not go beyond a mere separation of the oleomargarine from the stearine and membrane of the fat, although based on the physiologic principle that the nutritive property of animal fat is confined mostly to the oleomargarine, the stearine being oxidized by pulmonary respiration.

The Mege process may be divided into four distinct steps. (1) Crushing, grinding or disintegrating the fat by any suitable machinery, and washing the same by a stream of water which separates all soluble matter. (3) The separation and removal of the membrane and foreign material by gastric juice, produced from the half of the sheep's stomach treated with three litres of water containing thirty grams of bisulphate of lime. This step should be conducted at a temperature of about 125 deg. Fahr (2) The purified fat is packed in sacks of woolen or cotton cloth, and subjected to pressure or to centrifugal action The oleomargarine separates from the stearine, but the temperature must be kept to about 80 deg. Fahr., to allow the oleomargarine to flow freely. (4) Churning the oleomargarine with a small quantity of curds of milk or pure milk, and adding common salt and suitable coloring matter *e. g.*, annatto. Butter made by this process contains about 86 per cent of fat, 1 per cent of casein and ash, and 13 per cent of water, comparing favorably with ordinary market butter, which contains 86 per cent of fat, ½ per cent of casein, 1-10 per cent of ash, and 14 per cent of water.

In 1874, W. E. Andrew, patent of August 11, 1874, effected a separation of the oleomargarine by subjecting the fact to pressure, at a temperature sufficient to effect such separation, and allowing the oily product to run off to a cool place as fast as expressed and without the use of water. John Hobbs, patent August 18, 1874, avoided the use of alkalies used in the Mege process, by mixing molten tallow freed from animal tissue, with churned cream, allowing this to granulate, and finally whipping the same until it assumed a frothy appearance.

G. Cosine, patent of February 15, 1876, makes a mixture of animal oleine, olive, peanut or almond oil, lactic acid, and lappered cream or milk.

Dr. O. Boysen, patent of January 11, 1881, adds butyric acid to oleomargarine partially saponified by bicarbonate of soda; and W. H. Burnett, patent of October 24, 1882, makes an intimate mixture of lard, beef-suet, butter, glycerine salt, water and coloring matter.

It will be observed that all the patents granted since the patent of Mege, contemplate the incorporation in one way or another, of the butter principle of cream or milk with one or all the constituents of animal fat.

A GOOD WHITEWASH.

The following was "picked up" somewhere years ago, and parties to whom it has been given say that the wash is in every way satisfactory:

Take one-half bushel of unslacked lime, slake it with boiling water, cover it during the process to keep in the steam; strain the liquid through a fine sieve or strainer, and add to it a peck of salt, previously dissolved in warm water; three pounds of ground rice boiled to a thin paste and stirred in while hot; one-half pound of powdered Spanish whiting, and one pound of clean glue, which has been previously dissolved by soaking in cold water and then hanging over a slow fire in a small pot hung within a larger one filled with water. Add five gallons of hot water to the mixture, stir it well, and let it stand a few days covered from the dirt. It should be applied right hot for which purpose it can be kept in a kettle or a portable furnace. It is said that a pint of this mixture will cover one square yard, if properly applied, and answers equally as well as oil paint for wood, brick or stone, and is much cheaper. Coloring matter may be added as desired. For cream color, add yellow ochre; pearl or lead, add lamp or ivory black; fawn, add proportionately four pounds umber to 1 pound Indian red and one pound common lamp black; common stone color, add proportionately four pounds raw umber to two pounds lamp black. The east end of the President's house at Washington is embellished by this brilliant whitewash. Used by the government to whitewash lighthouses, etc.

ICE CREAM.

SOURCES OF DANGER.

Numerous cases of poisoning by ice cream have occurred in years past, in which the precise nature of the poison present was undiscoverable. In some instances the cream itself may have proved a dangerous irritant because of its extreme coldness, this physical property enabling it to cause interruption of digestion, and a certain amount of congestion; but some foreign agent is usually given the blame. These agents are, however, as we have mentioned, very elusive. Vanilla, the favorite flavoring for the cream, is often an object of suspicion. It is said that the beans have sometimes in the course of preparation for the market been greased with a poisonous oil, and enough of it has found its way into the cream to cause illness. The comparatively recent discovery of tyrotoxicon has, however, shown a cause of danger more universally present. This substance formed from the milk itself under conditions very imperfectly understood, has doubtless often been the agent responsible for ice cream poisoning. Metallic contamination from the vessels in which the cream is prepared has also come in for a share of blame. These vessels are usually of tin or rather tinned iron, and the tin being scarcely suspected of harm, the joints soldered with lead have been the doubted portions. But now it is charged that the latter source has been vastly increased by the use of terne plate in the place of tin. Tin plate is composed of about 93 per cent of iron or soft steel coated with 7 per cent of pure tin, while terne plate is composed of about 87 per cent of iron or soft steel, coated with a composition consisting of about one-sixth tin and five-sixths lead. In consequence of several recent cases of ice cream poisoning in Philadelphia in which this source was suggested, there has been some talk there of investigating the question as to whether this plate is being used for culinary vessels. It is to be hoped that the sanitary authorities generally will look especially into the matter. Their investigations will be of special interest to the pharmacist, who is not only liable to be called on to aid in the discovery of poison present in food, but to defend himself against charges of having furnished dangerous flavorings, when some other agent has caused trouble.

The skin of a boiled egg is an excellent remedy for a boil. Carefully peel it, wet and apply to the boil; it draws out the matter and will relieve soreness.

PUNISHING ADULTERATORS.

HOW THEY TREATED THOSE CONVICTED OF THIS CRIME IN OLDEN TIMES.

The *Muenchener Neueste Nachrichten* says: Our jolly adulterators of food and drink have cause to congratulate themselves that the "good old times" are past, and that their little jokes in this line are no longer looked upon in so tragic a fashion as whilom in the good town of Nuremberg. In the "Annals of the City of Nuremberg" of Counsellor Balthasar Muellner, which are kept in the archives of the ancient burgh, among other very interesting documents there are certain notices of the laws for the punishment of adulterators of food, whose Draconic terrors far overstep, in bloodthirsty penalties, the sanguinary code of Kaiser Karl V. In the year 1456, Hans Koelbel, a citizen of Nuremberg, and Lienhard Frey, of Thalmessing, for having adulterated some saffron, were, along with their adulterated wares, "on Friday after Misericordias," burned alive at the stake, and a woman who had assisted them was buried alive on the Monday after Boniface. In Anno. 1459, Ulrich Heydenheimer, citizen of Nuremberg, having added water to the wine which he was selling, was, by special act of grace, let off with the light punishment of losing both his ears. In Anno. 1464, Margareth Wessnerin, a huckster, who was caught in giving light weight, was buried alive near the common gallows. Such punishment had at that time, perhaps, no more effect in deterring adulterations than our laws of to-day.

Macaroni—Is It Healthful?—"Is macaroni healthful? and of what is it composed?"

Yes macaroni is a healthful article of diet. It is a paste made of the finest glutinous wheat, moulded and dried in the form of small tubes. It is highly nutritious and consumed in large quantities by most all civilized nations. In different countries it goes by the following names: "Turundal Italical," "vermicelli," and "Cogliaria paste." A somewhat similar preparation is made of flour and egg and called "noodles."

To Clean Silver and Gold.—One teaspoonful of ammonia to a tea cup full of water, applied with a rag, will clean silver or gold jewelry.

Soup and Love.—A philosopher says that of soup and love, soup is better. It is true, however, that both go down with a spoon.

Hard Water.—Hard water contains too much limestone, and that causes bread baked with it to soon dry out. If you use soft water to mix the dough, you get a much better article of bread, and one that will retain its freshness.

Plaster of Paris.—Plaster of Paris is an excellent material for sealing ketchup and fruit bottles or jugs, and is more easily applied than sealing-wax.

Refrigerated Poultry.—A gentleman in New York has recently tested the result of preserving a turkey in a refrigerator for ten years. This time having elapsed, the fowl was removed from the refrigerator, and, after being properly cooked, was eaten by a party of gentlemen. While putrefactive changes seem to have been entirely absent, it was found that the meat was practically tasteless.

The amount of cheese imported by the combined countries of Europe is about 480,007,000 pounds, and of this England takes over 360,000,000 pounds, or nearly 70 per cent of the whole.

MEDICAL.

HISTORICAL AND OTHER FACTS REGARDING VACCINATION.

BY IRVING A. WATSON, M. D.

[From the New Hampshire State Board of Health Report.]

[Continued.]

Dr. Woodville of London, within two years after the announcement of the discovery of vaccination, inoculated 1,000 well-vaccinated persons with the virus of small-pox and none received the infection.

The protection given by vaccination was so conclusively proven that, as a further test, physicians, and in some instances ministers, placed their children in houses infected with the worst type of small-pox, with impunity.

Vaccination was performed to quite an extent by clergymen. Indeed, the better educated among them used every honest endeavor to awaken their parishioners to the great value of the operation. Rev. G. C. Jenner vaccinated "3,000 persons without meeting with one unfavorable case, although he had inoculated [vaccinated] persons from the earliest infancy to eighty years of age." * * * "Upwards of two hundred of his patients have since been inoculated with active small-pox matter, but in no instance was the small-pox produced." The proofs of its efficacy were so strong that the operation was introduced from England with great rapidity into every civilized country.

Dr. Waterhouse, "Professor of Physic at Cambridge in New England" obtained some vaccine virus from a friend in Bath, England, and acknowledging the same under date of Aug. 4, 1800, said: "Accept my best thanks for the phial of vaccine poison. Its activity I have experienced on my nearest connections. I have inoculated five of my own family, and roused the public attention even beyond what I had imagined. The symptoms and appearance in the inoculated parts were exactly similar to those described and pictured by Dr. Jenner. I shall try the variolous matter on them in a week or two. I consider this as a very important thing to my country, where the dread of small-pox is still great.

"I have ventured to give a new name to the vaccine disorder. I observe that people revolt at the term cow-pox. I have therefore changed it to *kine-pox*, from kine, the plural of cow. As I am the only one in America who has published anything on that new disorder, I am in hopes to establish that name instead of the former. If it should obtain, I can foresee that the *e* will be changed in time to *d*."

This, indeed, is a significant letter and shows from what source the name, which has been so commonly used in this country, was derived. Dr. Waterhouse wrote a small work upon vaccination, in acknowledgement of which he received the following from the President of the United States:

WASHINGTON, Dec. 25, 1800.

SIR.—I received last night, and have read with great satisfaction, your pamphlet on the subject of the kine-pox and pray you to accept my thanks for the communication of it. I had before attended to your publications on the subject in the newspapers, and took much interest in the results of the experiments you were making. Every friend of humanity must look with pleasure on this discovery, by which one evil more is withdrawn from the condition of man; and must contemplate the possibility, that future improvements may still more and more lessen the catalogue of evils. In this line of proceeding you deserve well of your country; and I pray you, sir, accept my portion of the tribute due to you, and assurances for the high consideration and respect with which I am, sir,

Your most obedient and humble servant,
THOMAS JEFFERSON.

To Dr. Waterhouse, Cambridge.

The literature of vaccination, published within three years after its discovery, shows that the subject had been ably considered in all its details, bovine and humanized virus, communication of disease, spurious vaccination, decomposed virus, etc., etc. The anti-vaccinationists presented the same line of pseudo-arguments, and employed the same senseless and demagogical allegations in support of their assumed position as now—perhaps in some respects even exceeding them.

They based one of their strongest points in opposition to vaccination upon the hope of instilling into the mind of the ignorant, the idea that it was a *beastial* disease or humor, and that by introducing it into the system they received a disease which did not belong to the category of ills, placed by divine favor or disfavor, as the case might best suit the purpose of their argument, upon sinful mankind.

The beneficent discovery was, however, not allowed to be assailed unanswered. To the charge above mentioned Dr. Henry Jennér, a surgeon of London, forcibly said: "If this very weak and futile objection were worthy of reply, we might observe, that the cow is of all others the most healthy and the most cleanly of our domestic animals, and might also remark, that no females are so healthy as our dairy maids, whose morning and evening hours are spent amongst the cows." * * * "How void of foundation then must be the objection to the insertion of an atom of matter taken from the teat of a cow, once in the life only, when every person is in the daily habit of introducing into his stomach various parts of the same animal. The human stomach revolts not at beef, butter, cheese and cream; yet everyone acquainted with the animal economy must know these aliments are quickly mingled with the constitution."

In as logical a manner was every objection to vaccination met, but the extent of the absurdity to which the opposition was carried by ignorant bigoted fanatics, may be illustrated by a single quotation from a paper on vaccination, written by Dr. Richard Dunning in 1802. He said: "Some with a well feigned expectation of finding them, and therefore, with an ingenious cruelty peculiarly their own, have sought for, on the heads of children lately vaccinated, the approaching horns, and at the same time have, with equally affected seriousness, inquired if a something had not been noticed in their voices, imitative of the bellowing of a cow."

It should be noted that in the period under consideration, the value of the discovery had not been proven to the satisfaction of all, hence that it, like any new theory, would be assailed was to be expected; but such an attempt as that reported by Dr. De Barro, of Vienna, to bring the operation into disfavor, serves to show to what terrible extremes the effort was carried.

[To be continued.]

TAKE TIME TO EAT.

The opinion that hurrying in eating is a prolific cause of dyspepsia is founded on common observation. The ill results of "bolting" the food have been attributed to the lack of thorough mastication, and to the incomplete action of the saliva upon the food. Two-thirds of the food which we eat is starch, and starch cannot be utilized by the system as food until it has been converted into sugar, and this change is principally effected by the saliva.

But there is a third reason why rapidity of eating interferes with digestion. The presence of the salivary secretion in the stomach acts as a stimulus to the secretion of the gastric juice. Irrespective of the mechanical function of the teeth, food which goes into the stomach incompletely mingled with saliva, passes slowly and imperfectly through the process of stomach digestion. Therefore, as a sanitary maxim of no mean value, teach the children to eat slowly—and in giving this instruction by example, the teacher, as well as the pupil, may receive a benefit.—*Sanitary Inspector.*

MEDICAL WITNESSES.

The medical witness should refuse to submit to the partial questioning of lawyers, who only seek half truths or falsehoods as they may aid the case, says Dr. T. D. Crothers (*Times and Register*). He should have ample opportunity to study and formulate his opinion, and group all the facts and anthorities which sustain such views. He should have an opportunity to come in court and explain such views further for the benefit of the court and jury. The counsel should not be permitted to criticise or question except through the court, and the witness should have ample time to answer. Thus the inquiry of the scientific side of the case would be conducted with judicial fairness and command the respect of all. No medical witness should be required to go on the stand and give explicit answers to misleading or ignorant questions. He should have the same privilege of a judge to study the evidence and form his conclusions at leisure, and have all the facts carefully studied. The evidence of the case, so far as it bears on the scientific side, should be submitted to the physician, who would, after due study, present it to the court and jury. The present methods are a mockery of science and truth, and some new plan must be devised and adopted practically in the near future.

PEOPLE WHO LACK SALT.

Salt does not enter into the food of the poor Venetians, says a letter from Venice to the Omaha *Bee.* They never taste it and the hospital for scrofulous children at Lido is filled by those who had not the necessary article in their food. Every evening I have noticed a poorly dressed woman accompanied by two small children, a boy and a girl, go to a point on the river and lean over the wall and fill a bottle with the salt water. Becoming curious as to the use made of it I approached her with an apology for the question, and asked what she did with the sea water. Turning upon me a sweet, sad face, in which traces of beauty were still visible, she replied that this was the only way she had of giving her children the taste of salt which they required. The tax levied upon this article by the government places it entirely beyond the reach of the poor.

FOR THIRST OF INFANTS.—Dilute the whites of four eggs with a quart of water, flavor with orange-flower water, and sweeten to taste. Or, put the white of one egg in one-half glass of plain ice-water, without flavoring, and allow the child to take as much of it as it will, even the entire amount at one drinking, and repeating as the thirst may indicate.—*Southern Clinic.*

GLYCERINE IN BURNS.—M. Grigorescue (*Union Med.*) treats burns by applying a few drops of pure glycerine, followed by gentle friction. Moderate smarting is experienced, immediately succeeded by a kind of anæsthesia. Inflammation, which is the fatal symptom in these cases, is thus almost entirely prevented; moreover, the epithelium comes away by slow degrees, and the cicatrix is less marked. The affected parts should be kept constantly moist with the glycerine.

Effect of Light on the Skin.—When the skin is exposed to an unaccustomed amount of light, it becomes decidedly inflamed, and is said to be "sunburned." Hammer has ascertained by experiments with electric light, that this cutaneous affection is caused almost entirely by the ultra-violet rays, known also as the actinic or photographic rays of the spectrum. "Sunburned," therefore, is hardly a correct expression, since it implies that the phenomenon in question is an effect of heat. The action of the heat rays of the spectrum, however, differs essentially from that of the actinic. The former gives rise to a sudden and quickly-subsiding inflammation, while the effect of the latter is delayed for some time and then lasts several days, followed by a detachment of the cuticle and a discoloration continuing for weeks or months. In some individuals the sensibility of the skin is so great that even the ordinary light of day produces these symptoms. Electric light, by reason of its abounding in ultra-violet rays, exerts a very powerful influence in this direction, even at a distance where heat radiation is absolutely imperceptible. Substances that permit the ultra-violet rays to pass freely—such as water, glycerin, paraffin, olive oil, cold cream, etc.—when applied on the skin in thin layers, are of no service whatever in preventing sunburn.

Winter Cough and Nose Obstruction.—Mr. Mayo Collier says (*Lancet*) that the frequency of chronic winter cough, laryngeal catarrh and cold in the head is unfortunately, is this country, Europe and America, notorious. He has recently shown from the examination of over 1,000 living and 5,000 dried skulls that some irregularity of the nasal septum, causing more or less obstruction to nasal respirations, is a constant feature of nine out of every ten persons living in those countries. Facts are steadily accumulating, and the conviction is becoming established with many who are competent to judge "that chronic winter cough, laryngeal and post-nasal catarrh, with all their consequences, are in a majority of cases the direct result of breathing unfiltered, cold and dry air that has not passed through the proper respiratory gate." This proposition can only be refuted by the evidence to the contrary, and established by showing that every person suffering from winter cough or laryngeal catarrh or a majority of these, has some marked obstruction in the nose. This investigation is now proceeding at several centers, and it is with the object of still further directing attention to the subject that he writes.

Nutritive Value of Milk.—A child brought up on milk alone, and weighing at birth 3,200 grams, will gain in weight as follows:

During the	1st.	three months		y
"	2d.	"	18·35	"
"	3d.	"	13·5	"
"	4th.	"	8·00	"

Making the increase of weight during the first year about 6 kilograms.

During the second year the increase in weight will be about 2 k. 000 gr.

During the third year the increase in weight will be about 1 k. 200 gr.

During the fourth year the increase in weight will be about 1 k. 700 gr.

Making, up to five years, a total increase of 12 k. 570 gr.—*Rep. de Pharmacie.*

Not a Keeley Cure.—Half a teaspoonful of chloride of ammonium in a goblet of water will almost immediately restore the faculties to a man who is hopelessly intoxicated.

Treatment of Cracked Lips.—The following occurs in an exchange: Ordinary cases of cracked lips may be effectually dealt with by keeping them constantly smeared with "lip salve." The salve best for this purpose is made rather stiff, and without the red coloring matter usually added. The patient must carry a small box always with him, so that the application may be renewed as soon as the lips begin to dry. If they are deep cracks bordered by thickened epithelium it is sometimes good practice to pare down the hard margin.

Barber-shop Sanitation.—The Vienna Congress of Analytical Chemists has appointed a committee on the question of the daily disinfection of the brushes and combs used in shops and public places, to be made obligatory by legislation.

The Asparagus Odor.—Everyone who eats asparagus knows it, regrets it, and wonders at it, but not even the doctors know what it means. Prof. Nenki, of Berne, has investigated it and decided that it comes from methyl-mercaptan, one of the alcoholic sulph-hydrates; but the production of this substance in the urine by asparagus is still a mystery.

HYGIENIC.

CHLORINATED LIME AS A HOUSEHOLD DISINFECTANT.

BY JOHN J. BERRY, M.D.,

Member of the State Board of Health, Portsmouth, N. H.

No problem of greater importance confronts us from day to day than the effective disinfection of the sick room. Not because of the want of proper agents, but rather by reason of their great number and the confusion existing in the minds of many regarding their application. It is not surprising that such should be the case, for the fact is generally admitted that the germs of infectious diseases are of a most varied character, each possessing its own characteristics as regards development, propagation, and tenacity of life. Hence, an agent which readily attacks and promptly destroys the germ of one disease may prove wholly inefficient in reaching and removing that of another. To the physician or trained nurse the attainment of the desired results is a matter of little difficulty, but to the large class of people among which the various infectious diseases are specially prevalent and fatal, the details of practical disinfection form an unlearned science. It is, indeed, this lack of definite knowledge which has proven the most serious obstacle in the path of sanitary advancement.

It will be readily admitted that the intelligent use of a single disinfectant is productive of far better results than the careless and indifferent use of two or three simultaneously; in fact, the attempt to apply a special germicide to each particular case has in most instances proven a decided failure.

In view of these facts, it has seemed to us that some single agent which is cheap, harmless, effective, and readily applied, might be recommended almost exclusively—its proper employment being thoroughly explained and insisted upon.

Chlorinated lime probably possesses these qualifications to a greater degree than any other disinfectant and germicide, hence should be, in our opinion, the one generally advocated. This substance, commonly known as "Chloride of Lime" or "Bleaching Powder," is a white, dry powder, having a saline taste and a slight odor. It contains from 20 to 30 per cent of free chlorine to which its active properties are due. For this reason it is a somewhat unstable compound, being readily decomposed and setting free its chlorine in the presence of moisture, carbonic acid, the carbon dioxide of the air, and all organic material with which it may come in contact; hence, its action is more prompt than that of any other disinfectant. Its trifling cost, which is not over five cents a pound and even less in larger quantities, is another advantage, permitting its free and prolonged use by those unable to procure the more expensive and perhaps less effective agents.

This substance exerts a powerful action, not only as a disinfectant and deodorizer but also as a germicide. In a series of experiments conducted by the "Committee on Disinfectants," of the American Public Health Association, its properties were thoroughly investigated and these several characteristics fully demonstrated. It was shown that a solution of chlorine containing one part of the hypochlorite to 400 of water, was an effective germicide, even when allowed to act only one or two minutes. One of six parts to 10,000 was found to kill in two hours the spores of the bacillus anthracis, a disease germ most virulent in its action and most difficult to destroy. A similar result was attained by careful experimentation regarding its power to disinfect fecal matter. For these reasons, we may be fully assured of its efficacy in typhoid fever, diphtheria, and the ordinary contagious diseases, when employed in proper proportions. A like action may be noted whenever an infected atmosphere is treated by the same agent. In the presence of moisture, dry anthrax spores are killed by exposure for one hour to air containing 4 per cent of chlorine, while vaccine lymph loses its infectious properties in the presence of a 1 per cent vapor of the same. Hence, chlorinated lime has been recommended by the latest authorities as being, in a large proportion of cases, the best disinfectant known.

PRACTICAL APPLICATIONS.

Chlorinated lime may be used in its dry state or, better still, in solution. The latter can be prepared by dissolving six ounces of the powder in a gallon of soft water, forming what may be termed the "standard solution." This should be kept in clean air-tight receptacles until used.

There is probably no better method of treating infected clothing than by exposing the same to steam or other form of intense heat. Hence, all such material should first be boiled continuously for an hour. This promptly destroys all disease germs and their spores, and thus removes all danger from these sources. While there's a few of these organisms which resist for a few minutes a temperature of 212 F., the great majority succumb to a degree of heat not exceeding 140 F. It should be remembered, however, that large and compact bundles of clothing placed in the boiler, are not equally disinfected; for, while the temperature of the external portions may be sufficiently high, that of the centre may be scarcely up to the boiling point. Should it be impossible to carry out this plan at once, the infected material may be placed in the standard solution, diluted with three or four parts of water, or else gathered into one mass and enveloped in a covering saturated with the same. The use of the solution should follow rather than precede the process of boiling, for, by having the clothing comparatively clean and free from organic matter, a weaker solution and a less prolonged application of the same is required. The use of this agent has been frequently objected to on account of its bleaching action upon woolens, colored goods, and those of delicate texture. Material such as these, however, should be used as little as possible in the sick room, but if used, should be disinfected by heat alone; whereas, upon ordinary white goods a solution of the strength demanded can have little if any destructive action. The above methods are usually supplemented by the process of ironing, which, on account of the steam developed, is in itself of some germicidal value.

[To be continued.]

WATER SUPPLY AND PUBLIC HEALTH.

BY ALLEN HAZEN, LAWRENCE, MASS.

[Read at the nineteenth annual meeting of the American Public Health Association.

[Concluded.]

Professor Sedgwick has shown, in his admirable report upon the sanitary condition of Lowell, that after the Merrimack water had passed through the capacious reservoir and several miles of iron pipes, requiring in all at least several days' time, the total number of bacteria was greatly reduced, and apparently, also, the number of typhoid germs, for there were relatively less cases among the users of this water than among those who drak the canal water taken more directly from the river.

It is possible that these conditions might be so extended as to secure immunity, or, at least, so to decrease the number of disease germs that their presence would be without noticeable effect upon the public health. In view of our experience, we shall do well to inquire what limits, if any, are admissible, and, in the meantime, take good care to avoid all water supplies taken without filtration from bodies of water into which sewage directly flows. Until we have positive information that the objectionable germs cannot live beyond certain limits, we can only be justified in refusing to allow any limits, and in condemning all waters so polluted.

As a solution of our problem, we may have recourse to some method of purification, either of the sewage before turning it into the water, or of the water after it has been polluted. The only processes now known, which are at once feasible and effective in the removal of bacteria, are processes of filtration. Filtration may take place either through natural soil, or through specially prepared filters, In either case it may, or it may not, be an efficient safeguard against sewage contamination. Many household filters are notoriously inadequate; many old wells are unmistakable carriers of disease drawn through the soil from neighboring cesspools; while, on the other hand, people drink with impunity the water from other wells, even more grossly polluted, but in soils which are more favorable to the removal of bacteria; and in some European cities a great reduction of the death-rate from typhoid fever is effected by the introduction, not of a sewage-free water, but of a well filtered, although previously polluted, water.

The sewage of the inhabitants of a drainage area may be filtered, either from cesspools connected with each house, in which case their contents slowly soak or filter through the soil toward the water courses, or the sewage may be collected and treated by intermittent filtration. In either case, great care must be taken that no trace of sewage finds a more direct channel than was intended.

Intermittent filtration is only able to exclude bacteria from the effluent under particular conditions; and these conditions must be fulfilled to insure safety. The experiments of the Massachusetts State Board of Health, conducted under the direction of Mr. Hiram F. Mills, have shown what many of these conditions are. I have no time at present to discuss these experiments; I can only refer to the published report, and say that so much light has been obtained as to make possible reliable estimates of the results to be obtained under a wide range of local conditions.

Another way of approaching the problem is, to allow the free entrance of sewage into the water courses, depending upon filtration to remove the bacteria from the water before it is delivered to consumers. In the case of large inhabited watersheds, as, for instance, that of one of our large rivers, this is the only practicable way, it being impossible to maintain adequate inspection of a large area and population.

When extensive sand deposits occur along the banks of the river or lake, wells of filter galleries sunk in them have often yielded a large amount of water, so well filtered by its passage through the sand as to be quite safe. Under other local conditions, similar wells have failed to yield the quantity or quality of water desired. This method of filtration is most important, but as yet no general conclusions can be safely drawn.

When there are no sand deposits to make wells and filter galleries successful, other forms of filtration have often been used.

Very prominent are the patented mechanical filters, whose essential characteristics are very high rates for filtration through small bodies of sand, often with the use of chemicals and under pressure. Such filters have been most successful in removing suspended matters from turbid river waters, rendering them suitable for paper and other manufacturing, and also to improve the appearance of muddy, but unpolluted, waters. The success of these filters in their proper sphere is great and unquestioned. We have, as yet, however, no proof that they are capable of removing completely the bacteria from sewage-polluted waters. Until we have positive evidence that a system of filtration, under all conditions likely to occur in practice, will exclude pathogenic germs, we shall not be justified in approving its use for sewage-polluted water. The cleaning of unpolluted water is entirely another matter, not to be confounded for an instant with the present problem.

In many European cities, another and widely different system of filtration is in use. The water to be filtered is taken on to large areas of thoroughly underdrained sand, kept continually covered with water, which slowly finds its way through the sand at a rate of one, two, or even three million gallons per acre daily. The results obtained at Berlin are especially valuable, for the engineer in charge has taken into account the removal of pathogenic germs, both as shown by laboratory experiments, and by the death-rate from typhoid fever among the users of the water.

Piefke's results show that, under conditions sure to occur without most careful superintendence, bacteria pass the Berlin filters in sufficient numbers to increase the death-rate; but by giving most careful attention to details, this can be almost entirely avoided. If the filters do not remove every single germ, the number which escape is too small perceptibly to affect the death-rate. These results, and those of other European cities, show us that continuous filtration may, or may not, be an efficient safeguard against typhoid epidemics, according to the rate of filtration, the character of the sand employed, and other details of management.

The point is established that filters can be so constructed and managed as to afford relief. We must now endeavor to find how to attain the desired result with the minimum expense; how coarse materials can be used with safety; how rapidly water can be applied to material of various degrees of fineness? Can the best results be obtained by applying the water continuously, or at intervals, with periods of rest between, during which the filter has a chance to drain, drawing air into its pores? These, and similar questions, require definite answers. Experiments now in progress at the Lawrence experiment station were designed to throw additional light upon these points. We know that fine materials and slow rates of filtration tend to give germ-free, and consequently safe, effluents.

Some limits are already known, both from the experience of European cities and from our own experiments. Some filtering materials, at certain rates of speed, give effluents practically free from bacteria. It is possible that we shall learn by further experiment that somewhat coarser materials, or that higher rates of filtration, may be employed without danger. In the meantime, when it seems necessary to take water supplies from bodies of water into which sewage directly flows, we can best secure the public health by the use of filters which are definitely within the known limits of safety.

CLEANLINESS.

Habits of cleanliness have much to do with preserving good health. Thousands of persons are now on the sick list for want of cleanliness, and many are killed by its neglect. For convenience sake we will divide our subject into two parts—that treating of general cleanliness, and that of particular cleanliness. By general cleanliness I mean that of our bodies and surroundings. Every person should keep his skin clean by means of a daily dry rub and a weekly hot bath or wash all over with warm water. Besides this, he should change his underclothes daily; the shirt worn in the day should be removed at night and a night-dress worn; this night-dress may be of flannel if desired. When a person rises from his bed in the morning he should remove the dress worn in the night, and throw it over the back of a chair, so that it may be thoroughly aired before it is again put on. Next, he should throw the bedclothes back over the rail at the foot of the bed, and so expose them to the pure air. Some are more particular, and throw each sheet or blanket over a separate chair, and thus make sure of perfect exposure of their bed linen to the air. All slops should be removed from a bedroom as soon as possible, so that the room may be kept sweet. Some persons go so far as to provide a cover for their chamber utensils. This is a step in the right direction, and prevents the air of a bedroom being unduly fouled.

Sponges, flannels, or other articles used in keeping the body clean should often be washed in boiling water, and exposed to the air to keep them sweet and clean.

In the living-room the windows should always be kept open a little in winter and more in summer, to ensure that the air we breathe is kept pure. We have no more right to breathe again the foul breath from our lungs than we have to eat the refuse food that has passed through our bodies. Foul air clogs up our lungs, renders our blood impure, and so shortens life. Wherever we are we must never forget that the air we expel from our lungs is very unclean and unfit for further re-breathing; to breathe the pure air night and day as much as possible through our noses must be our constant care if we would have clean and healthy lungs.

The clothes we wear should be kept clean by being brushed daily if possible. Those who are engaged in dirty or dusty work should have their clothes well beaten every day after they come home from work. This applies specially to those who are employed in chemical works. Those who work at greasy occupations should have the grease removed from their clothes by a little benzine. If these simple precautions are taken better health will result, as dust and disease germs will then be kept as much as possible outside the home.

In dusting a room be careful that the dust disturbed does not settle down again or cling to the wall. It is best to use a slightly moist duster for going over furniture, and then a dry one afterwards. By this means the dust is retained by the moist duster, and can be washed out of it afterwards. If a dry duster is used, then it should be shaken out of the window every few minutes. It is a good plan, if living in the country, to take every article out of doors and give it a good dusting first and an airing afterwards.—*Hall's Journal of Health.*

MISCELLANEOUS.

THE PACKERS' FIGHT.

HISTORY OF THE FAMOUS DEAL WITH THE CHICAGO UNION STOCK YARDS COMPANY.

At present the validity of the contract executed in London, July 27, 1891, between the Chicago Junction Railway and the Union Stock Yards Company—which is known as the New Jersey company—and the three big Chicago packers, is being discussed before Judge Tuley by some of the ablest lawyers in the country. As to the effect of this contract, it is claimed that it creates a monopoly in favor of Armour & Co., Nelson Morris & Co., and Swift & Co., and that it was made as the result of a conspiracy to secure for them an unfair advantage and unlawful discrimination over the smaller packers, who style themselves the non-associate packers. Another branch of the fight is the bill recently filed by a stockholder of the Chicago company to have declared void the New Jersey company because it is holding the majority of the stock of another corporation. This is merely another way of attempting to defeat the contract involved in the first litigation.

At no time in the history of the present courthouse has such legal talent been gathered together in one case. The biggest lawyers in Chicago are engaged in the battle, and prominent counsel from New York, Vermont, New Jersey and elsewhere have been called into the case. For the first time since he left the bench Judge Moran appeared as counsel, and with his partner, Levy Mayer, A. M. Pence and John P. Wilson, appears for the complaining non-associate packers. The associate packers are represented by E. Walker, A. H. Veeder and Campbell & Custer. For the New Jersey company appeared in court W. C. Goudy, John J. Herrick and John N. Jewett of Chicago, and Joseph H. Choate and William D. Guthrie of New York. William H. Seward of New York, ex-Minister to England E. J. Phelps of Vermont, and Courtland Parker of New Jersey also represent the New Jersey company.

The first step was taken by Mr. Herrick to transfer to the United States Circuit Court the bill filed by a stockholder of the Chicago company against the New Jersey company. His reason for this was that the fight was between residents of two different States. The court said he would leave that question for the Federal court to pass upon, and Mr. Mayer proceeded to read the bills of the non-associate packers. In substance these complainants allege that their real estate and machinery are worth $5,000,000; that the capital employed by them exceeds $20,000,000; that their annual sales amount to $90,000,000; that they employ 6,000 men and slaughter 45 per cent of the animals at the stock yards. The New Jersey company was organized July 10, 1890, with a capital of $13,000,000, and immediately purchased about 129,570 shares of stock of the Chicago company for $22,557,283, of which $6,490,000 was paid for by bonds of the New Jersey company and the remainder in cash. The purchase by the three packers of the Tolleston and Central Stock Yards is said to have been a mere design to coerce and terrify the New Jersey company to enter into the illegal contract. It is claimed that the land was cheap and that the associate packers had no intention to utilize the premises for a stock yards. By the terms of the illegal contract the three packers are to convey the Central Stock Yards to the Chicago company for $250,000 with the option of paying cash or giving a trust deed on the premises. The Tolleston lands are to be deeded to the New Jersey company. It is alleged that under the agreement the three packers are to receive from the Chicago company a rebate of about $250,000 for fifteen years, and in return the three packers agree to continue doing business with the Chicago company and to allow the company to collect yardage and charges to amount to at least $2,000,000 within six years or to pay the difference. In this way, it is alleged that the three packers would receive about $2,500,000 in drawbacks under the contract. This arrangement is termed a combination in the form of a trust or a conspiracy, in restraint of trade and contrary to public policy. Upon these allegations the court is asked to set aside the contract and meanwhile to grant an injunction restraining the defendants from acting under the contracts, which is the motion now on hearing.

Mr. Herrick then read the answer of the New Jersey company. It first denies that the Chicago company is a railroad corporation or that it is compelled under its charter to do the business of a common carrier. Express denial is made that the Central Stock Yards and the Tolleston tract were purchased for speculative purposes, or that the deals were made to bring about the contract in controversy or with the object of entering into any unlawful combination to create a trust. For the two tracts of land, it is said that the associate packers paid $748,257, and it was their intention to use the premises as a private stock yard to save to themselves the yardage and profit in feed which they would be otherwise compelled to pay the Chicago company. It is further denied that the New Jersey company at any time or now has control of the Chicago company or that it exercises dominion over its business. None of the directors of the Chicago company have been or are now the creatures of the New Jersey company.

The associate packers are said to be men of large means. It is said that they have over $36,000,000 of capital invested in their business; that their gross sales amount to about $150,000,000 per annum (in 1891, $155,000,000); that they employ at their establishments over 16,000 persons; that they have large private fortunes, and that they are willing to expend any and all sums necessary in order to carry out their avowed purpose of ceasing to purchase cattle and live stock at the Union Stock Yards. The value of the live stock received at the Chicago yards during 1891 was $240,000,000, and the allegation is made that the removal of the establishments of the associate packers would destroy the market in Chicago, and the injury to the city and to the State would be incalculable.

During 1891, it is said, the income derived by the Chicago company from the associate packers amounted to more than $600,000. When the three packers filed their bills in the circuit court to compel the Chicago company to deliver live stock direct to their Central Stock Yards, two prominent stockholders of the Chicago company—Nathaniel Thayer of Boston, and John B. Sherman—deemed it wise and proper to enter into some arrangement with the associate packers to induce them to continue business at the Chicago yards. After prolonged negotiations the contract of July 27, 1891, was entered into, and it is insisted that it is for the benefit of the stockholders of the Chicago company. It is claimed by the New Jersey company that it had the power to execute the agreement which was calculated to increase the value of the Chicago company's stock and to promote the best interests of the stockholders. In return for the contract the New Jersey received in consideration about $3,000,000, without regard to the value of 1,000 acres of land at Tolleston or the Central Stock Yards.

Finally, it is insisted by the New Jersey company, these suits are brought for the purpose of harrassing the Chicago company and advancing the interests of the rival stock yards, and to compel the New Jersey company to make some allowance to the non-associate packers or their rival company either in property or in its money equivalent. The relief of the complainants is said to be at law. The position taken by the three packers is substantially the same as that advanced by the New Jersey company, and their answers were read by Mr. Custer.

ILLUSTRATING A COMMA.—Aunt Polly was a strict disciplinarian. One day she was drilling the class in punctuation, and asked one Bill Milliken what a comma looked like. "It looks like a pollywog, ma'am," was the answer. Bill got his ears cuffed; but not a scholar there ever failed to recognize a comma at sight after that definition.—*Lewiston Journal.*

DANGER OF CELLULOID.

A lady says: "I should like to remind ladies of the danger of approaching a hot fire when wearing ornamental combs and pins, resembling tortoiseshell, in their hair. Some few months ago I had occasion to alter the slope of a pin of a hair-slide made of this material, and, all unconscious of the risk I was running, held it near the flame of a candle. All went well for a few minutes, when suddenly, with a slight noise like that of gas being lighted, my hair-slide was in full blaze, the flames darting upward more than a foot in height. I flung it from me and threw a rug over it, and fortunately, no harm was done; but the flames, the smell and the noise were sufficiently alarming. Cases have been known of these hair ornaments becoming ignited as the wearers were sitting on the hearth-rug before a brisk fire—a favorite habit with young people." The inflammability of some kinds of buttons used on ladies' and children's dresses has been discovered by a curious accident. A lady standing near a bright, but not blazing, fire found herself suddenly enveloped in smoke. It was found on examination that the fire originated at a spot where a large fancy button had been. A similar button was sent to Mr. C. V. Boys, of the Royal College of Science, who found that it was made of a combination of gun cotton and camphor, and more liable to spontaneous combustion than the phosphorous end of a wax match. Buttons that look like horn or tortoiseshell, and smell of camphor when rubbed with a cloth, had better be avoided.

PRESERVING FRUITS.—Californians have a method of preserving fruit without sugar so that it will keep sound and fresh for years. The recipe is as follows: Fill clean, dry, wide-mouthed bottles with fresh, sound fruit; add nothing, not even water. Be sure that the fruit is well and closely packed in, and ram the corks—of best quality—tightly down into the neck of the bottles until level with the glass. Now tie the corks down tight with strong twine, and after putting the bottles into bags stand them in a pan or boiler of cold water. Let the water reach not quite to the shoulders of the bottles. Let the fire be moderate, and bring the water to boiling. Boil gently for ten minutes, remove from the fire and allow all to cool.

SALT EXHIBIT AT THE COLUMBIAN EXPOSITION.—The Salt Manufacturers' Association of Michigan has agreed to make the salt exhibit for the State, and will get up a display which, doubtless, will attract a great deal of attention. A Bay City man has made a life study of salt manufacturing, and has learned the methods practiced in all ages for making salt. It is the intention to have him make models of all salt manufacturing apparatus used from the earliest days down to the present time, from the most primitive to the modern salt blocks, and in connection with the models, show all the processes now practiced in producing salt. The association will, of course, show a full line of salt.

METHOD OF RENDERING PORTLAND CEMENT UNATTACKABLE BY FROST.—The object may be effected according to Reinhofer, by the addition of a quantity of soda crystals dissolved in water. The mortar submitted to experiment was composed of one liter of Portland cement, one liter of lime, three liters of river sand, mixed with a solution of one kilo. of soda in three liters of water, This mortar was exposed for fourteen hours and a half to a maximum cold of —31.5 deg., and was then introduced for three hours into a furnace. When taken out its setting was found quite unaffected.

NEW BOOKS.

WORTHINGTON & CO., 747 Broadway, New York, announce for immediate publication as No. 26 in their International Library, "A POOR GIRL." By W. Heimburg. Translated by Elise L. Lathrop. With over forty photogravure illustrations.

There is an indefinable charm in the pages of Heimburg's latest novel, "A Poor Girl." It is difficult to tell exactly the reason why, but somehow the book takes hold of one, we become deeply interested, and read on and on and cannot stop until the end is reached. Of course, one reason for its occult power is that it is written with admirable grace and precision, besides presenting a perfectly pure love story, very romantic to be sure, but without being unnatural. Also the graceful ease with which the novel is unfolded, its minute fidelity to nature, its masterful presentation of the workings of the human heart, stamp it in every respect an exceptional book in current literature. The heroine's character is worked out with the skill of an accomplished novelist, who, besides, contrives a satisfactory dénoûment and points out a useful moral. We feel confident that this story, which appeals so strongly to the reader's sympathy, will be one of the favorites in the popular Heimburg series.

Price, in half Rox., $1.25; paper, 75 cents.

Also No. 27 in their International Library: THE ERL QUEEN, by Nataly von Eschstruth. Translated by Emily S. Howard. Illustrated. 1 vol. 12 mo. cloth $1.25, or paper 75 cents.

A very pretty story by the now famous author of "The Wild Rose of Gross-Stauffen," noteworthy for the keen and subtle psychology displayed by the novelist in her analysis of the human heart. This poetic love tale treats of the fortunes of a beautiful, but spoilt young heiress and her adorer, a young naval officer. The different complications that ensue, the plot, courtship and mischief-making are well told; among others the descriptions of sea life are admirable. Court life is well sketched—the bluff sailor Prince Leopold especially. The translator has a musical style and has given us a book of unusual excellence.

A GREAT STORY.—"The Scarlet Letter," Nathaniel Hawthorne's most celebrated story, and one of the most famous in American literature, up to a few weeks ago cost, in cheapest cloth binding, $1.00, or in paper, 50 cents. We have just received a very neat and thoroughly well-made cloth-bound edition from John B. Alden, publisher, New York, which he sells for 20 cents, plus 5 cents for postage, if by mail; the same in paper covers he sells for 10 cents, post-paid. His catalogue of choice books, over 100 pages, which he sends to any one for 2 cents postage, is a literary curiosity, which every book-buyer ought to have, of course. His publications are not sold by booksellers, but only direct. Address, John B. Alden, publisher, 57 Rose street, New York.

BUFFALO LITHIA SPRINGS.—HOT SPRINGS.

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"Hence it is a **prophylactic,** *as well as a* **remedy in Nephritic Colic,** *and forming* **Calculi** *when due to a redundancy of* **Lithic Acid.**"

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"*It not only eliminates from the blood the deleterious agent before it crystallizes, but* **dissolves** *it in the form of* **Calculi,** *at least to a size that renders its passage along the ureters and urethra comparatively easy.*"

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THOMAS F. GOODE, - - - Buffalo Lithia Springs, Va.

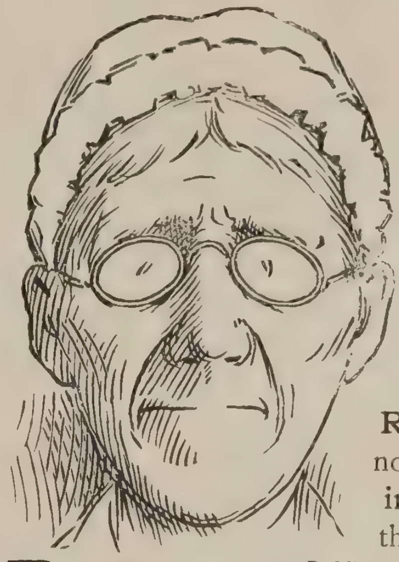
SPRING AILMENTS.

> "In the spring a fuller crimson comes upon the robin's
> breast;
> In the spring the wanton lapwing gets himself another
> crest;
> In the spring a livelier iris changes on the burnished
> dove;
> In the spring a young man's fancy lightly turns to thoughts
> of love."
>
> —*Tennyson.*

Yes, and in the spring comes house-cleaning, also, and moving and many other things more practical than poetic. That the human body needs a "spring cleaning" just the same as our inanimate dwellings is a deeply-rooted conviction; and this universal idea is not, we are inclined to believe, wholly groundless. Atmospheric conditions, exhalations from the settling ground, change of clothing, improper food, an excessive use of tea and coffee, and the lack of cleanliness and exercise are some of the causes of sickness at this season. Often no real disease can be discovered, but the patient is "tired," "all gone," "used up," "below par," "run down," and "about half sick." Atmospheric changes, though not preventable, can be guarded against by heat and clothing. Though unable to control our neighbor's, our own premises may be made sanitary by good plumbing, the removal of decaying debris, and the use of germicides and disinfectants. The rubbers and winter flannels should not be laid aside too early, and the change from heavy to light clothing should be gradual. As more food is required in cold weather, it being largely utilized as heat, evidently, unless the amount is reduced in the spring, the system must become surcharged with noxious matter, which tends to produce disease. Less food as a whole, a free use of fruit and vegetables and the substitution of milk and water for the more popular beverages greatly benefit these patients. Water, both internally and externally, is one of our best remedies. A glass, either hot or cold, on rising and several during the day, stimulate the intestinal and urinary tracts and "flush the system," while a semi-weekly bath removes the products of perspiration, arouses the cutaneous circulation and acts as a most excellent depurative. Moderate exercise is also of much service, improving digestion, purifying the blood and creating a sense of well-being. Of drugs but little need be said, for remedies must be adapted to individual necessities. Generally speaking, however, alteratives, tonics, and reconstructives will be "indicated." The one remedy combining all these properties in a pleasant form and perfectly safe to take is Dr. J. C. Ayer's Sarsaparilla—for sale in every drug store. Though apparently simple, this remedy is remarkably efficacious, and, if used in conjunction with the measures already named, will accomplish much in the treatment of these ailments.

THE FOOD MANUFACTURERS' EXPOSITION.

An arrangement has been made with Miss Maria Parloa of Boston, the distinguished lecturer in the art of cooking, whereby she is to take entire charge of that department of the Exposition, to be held at Madison Square Garden, New York, in October next, under the auspices of the Food Manufacturers' Association. The concert hall of Madison Square Garden, the handsomest public hall in this country, has been secured for that purpose, where Miss Parloa will lecture and give practical demonstrations in cooking, every afternoon during the Exposition. It is proposed to precede each of these lectures with a concert by the Seidl Orchestra, with Herr Anton Seidl personally conducting. It is confidently believed that these concerts and lectures will prove the most popular feature of the Exposition, and that they will be crowded at every performance.



Painful Spectacles

the women who try to wash without **Pearline.** It's hard to look at, but it's harder yet to do it. Washing with **Pearline** is easy—easy for weak backs, easy on delicate fabrics. It does away with the Rub, Rub, Rub. There is nothing as convenient—nothing so effective. Washing with **Pearline** is safe; millions know it, and can tell the millions who want to know.

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O V Sauterne, with the exact character and *Seve* of imported Sauternes.

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"Eat BEECHNUT Hams and Bacon."

BUSINESS NOTES.

HORSFORD'S ACID PHOSPHATE.

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A teaspoonful added to a glass of hot or cold water, and sweetened to the taste, will be found refreshing and invigorating.

Dr. M. W. Gray, Cave Spring, Ga., says: "I have used it with perfect success in habitual sick headache."

BEWARE OF OINTMENTS FOR CATARRH THAT CONTAIN MERCURY,

as mercury will surely destroy the sense of smell and completely derange the whole system when entering it through the mucous surfaces. Such articles should never be used except on prescriptions from reputable physicians, as the damage they will do is tenfold to the good you can possibly derive from them. Hall's Catarrh Cure, manufactured by F. J. Cheney & Co., Toledo, O., contains no mercury, and is taken internally, acting directly upon the blood and mucous surfaces of the system. In buying Hall's Catarrh Cure be sure you get the genuine. It is taken internally, and made in Toledo, Ohio, by F. J. Cheney & Co. Testimonials free.

☞ Sold by druggists, price 75c. per bottle.

THE LINE OF LAKES.

The above name has been applied to the Wisconsin Central Lines, on account of the large number of lakes and summer resorts tributary to its lines. Among some of the well-known summer resorts are Fox Lake, Ill., Lake Villa, Ill., Waukesha, Mukwonago, Cedar Lake, Neenah, Waupaca, Fifield, Butternut and Ashland, Wis. These lakes abound in numerous species of fish, such as black bass, rock bass, pickerel, pike, perch, muskallonge, while sportsmen will find an abundance of game, such as duck, geese, quail, snipe, etc. In the grandeur of her scenery, the charming beauty of her rustic landscapes and the rare perfection of her summer climate, the State of Wisconsin is acknowledged to be without a peer in the Union. Her fame as a refreshing retreat for the overheated, careworn inhabitants of the great cities during the midsummer months, has extended as far southward as the Gulf of Mexico and eastward to the Atlantic.

Pamphlets giving valuable information can be obtained free upon application to G. R. Fitch, G. E. A., New York, N. Y., or Jas. C. Pond, General Passenger and Ticket Agent, Chicago, Ill.

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promptly attended to.

Over Ninety-one Miles Per Hour.—Engine No. 385 of the Central Railroad of New Jersey broke all records of high speed on February 26, by running a mile in 39¼ seconds, or at the rate of 91.7 miles per hour. The engine is a Baldwin compound. In speeding this engine the first mile was made in 76 seconds, the second in 62, the third in 53½, the fourth in 45½, and the fifth in 39¼ seconds. The engineer reports that the engine was running fastest on the sixth mile, but it was not recorded on account of excitement which followed when the engine made this wonderful speed. Mr. Hoffecker, superintendent of motive power, informs the *National Car Builder* that he has every reason to believe the report correct, and that he has timed this engine himself while running a mile in 42 seconds. Four duplicates of this engine have been ordered.

Two Verdicts.—A man who would have friends must show himself friendly. A man stopped at an inn over night. He had just left a town where he had been staying for several years. The landlord asked him why he had left the place. He replied, "Because my neighbors were so disagreeable and disobliging there was no living with them." The landlord replied, "You will find just such neighbors where you are going." The next night another traveler happened to come from the same place. He told the landlord he was obliged to leave the place where he was living, and that it cost him great pain to part with his neighbors, who had been so kind and obliging. The landlord encouraged him by telling him that he would find just such neighbors where he, too, was going. What kind of neighbors do *you* find?—*Sabbath School Visitor.*

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STOMACH, LIVER AND BOWELS,
AND
PURIFY THE BLOOD.
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Indigestion, Biliousness, Headache, Constipation, Dyspepsia, Chronic Liver Troubles, Dizziness, Bad Complexion, Dysentery, Offensive Breath, and all disorders of the Stomach, Liver and Bowels.

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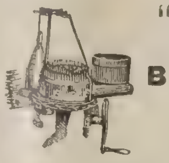

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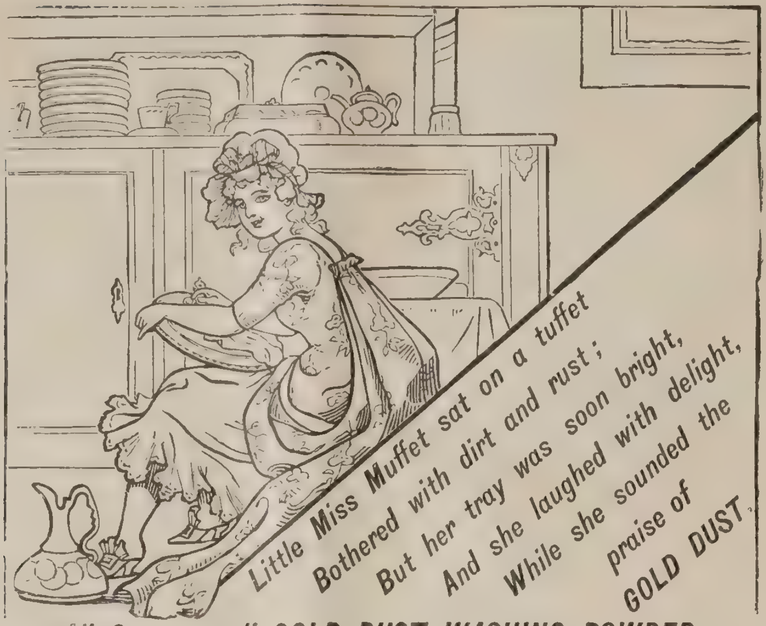
Little Miss Muffet sat on a tuffet
Bothered with dirt and rust;
But her tray was soon bright,
And she laughed with delight,
While she sounded the
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GOLD DUST.

All Grocers sell GOLD DUST WASHING POWDER.

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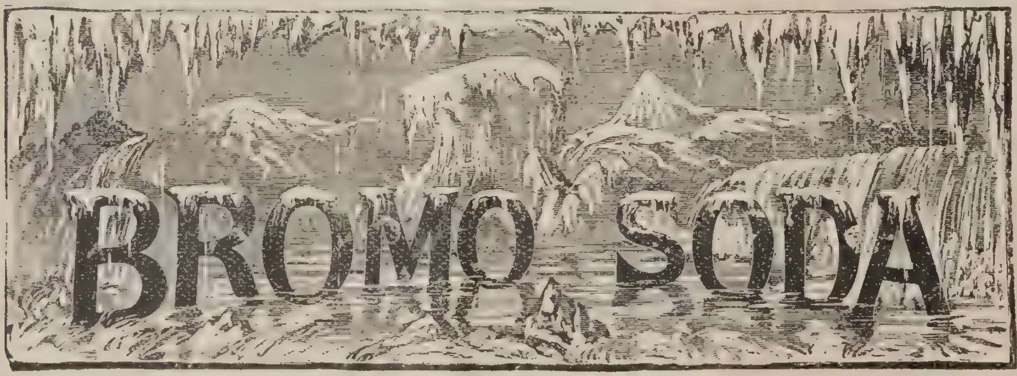

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INCOMPARABLE TONIC AND NERVE SUPPORT.

Pleasant to take, quick and efficacious in action. 50 cents per box, by mail, to any address.

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CONTENTS.

Page
Adulteration 209
Alum Baking Powders 211
Care of the Hands 214
Chlorinated Lime as a Disinfectant 214
Editorial 205
Adulteration—Our Beef Supply.
Food Before Sleep 213
Gingerbread and Snaps 215
Historical Facts Regarding Vaccination 212
Honey and its Adulterations 209
Household 214
Hygienic 214
Medical 212
Medicated Skin Varnishes 213
Miscellaneous 2 8
Our Beef Supply 205
Post Office Don'ts 218
Shopping by System 215
Succulent Clam 207
Wise Sayings 207

ADULTERATION.

Our two articles, one on adulterated honey, and the other on alum baking powders, occupy considerable space in this number, yet the subjects are of sufficient importance to require such space. We have yet in our hands for publication in an early number the report of the Department of Agriculture on adulterated candies and molasses and syrups. The fact that there are sophisticated candies in the market we have never doubted, notwithstanding the loud protestations of the National Confectioners' Association to the contrary. We have the official report of the government now to prove the assertion. Though this has been published several weeks ago and must have come under the notice of the two confectioners' organs, neither of them has seen fit yet to say aught about it. Perhaps they have not found out yet what the confectioners have to say about it.

With our synopsis of the report on adulterated honey, we publish some letters received from those who were found selling this adulterated honey. All who are mentioned were given a similar opportunity. Some claimed that the government chemists were mistaken, but more determined to brazen it out, relying on the fact that honey is not used so much at this season of the year and that therefore the public will forget all about it before fall. In this they will be disappointed, because we shall reprint the report in the fall, and publish with it some new analyses made then, to show what improvement there has been between now and then in the purity of the honeys on the market. The main purpose of publishing this report now is to make dealers feel their responsibility for selling impure goods and to save their reputation by having their goods thoroughly analyzed before guaranteeing their purity. We do not expect that all honey dealers will make even the attempt to improve their goods, for some of them went so far as to copy Vanderbilt's famous saying, "the public be darned." We think such dealers will change their mind after they have been pilloried.

OUR BEEF SUPPLY.

The article under this heading will be found of general interest to every reader. It will show at a glance why the best beef and beef extract comes from the West, and it also proves that some much advertised beef extracts are not quite as appetizing when the process of their preparation is known. The South American abattoirs being so far away have hitherto escaped newspaper description, but now when we read it, it is found too disgusting to dwell on. It might be as well to confine ourselves to beef killed and dressed in a way that will bear investigation.

OUR BEEF SUPPLY.

A GRAPHIC CONTRAST OF THE METHODS OF PROCURING BEEF AT THREE SOURCES.

It will be readily admitted that a steer of proper age, well reared and fattened within ten or twenty miles of the place of slaughter, leisurely driven into a clean abattoir, killed and dressed in a proper and cleanly manner, kept for a week in a temperature of 38 deg. to 40 deg., and then put upon the market, would be ideally good meat. But is anyone insane enough to believe that such animals supply even an infinitesimal part of our New York dressed beef? or indeed of any considerable part of the local beef consumption in the East. The cattle for the country's consumption comes from Texas, Colorado, Montana and Wyoming, and in limited quantities from some of the States east of the Missouri River. Land in the more settled States is too valuable for other purposes to permit their successful competition in grazing with the far West.

Now what would have been the conditions that gave such peculiar excellence to that ideal steer supposing he had existed? 1. He was in good condition and subjected to very little travel. 2. He was properly killed and kept before being put upon the market. Are those conditions common to Eastern dressed beef? No; they are absolutely non-existent in that supply. The distance whence our live cattle come has been stated. Wild as deer upon the plains where they have been reared, they are forced into railroad cars for a journey of two or three week's duration, under such strange conditions as fill them with constant terror. They are necessarily packed in as closely as they can stand together—fifteen to seventeen in each car—for if one of the poor exhausted brutes has room enough to lie down it will never rise again but will be trampled, mangled and perhaps killed by the others. If two fall, the others are tossed to and fro by the motion of the cars, and more are thrown down. Those that stand longest fight madly at times, and at other times plunge upon and gore the fallen ones. When they reach the end of their long journey, it is not rare to find among them broken limbs, horns knocked off and eyes torn from their sockets or smashed. Those less severely injured are covered with painful bruises, in which the blood has settled and turned black. The animals in best condition have lost much in weight, are fevered, and, to make them fit for human food, should be turned loose in a pasture for at least a week or ten days, to restore their calm and dissipate the fever in their blood. But this is never done. Their meat is wanted for the next days' supply probably, certainly for the second, so they are hurried to the slaughter house—the agonized brutes that have been maimed being sent to the knife with special dispatch. The atmosphere of the slaughter house is heavy with the foul odors of blood and decomposition. Often at the first sniff of it the doomed animals become actually frenzied with terror. All ruminant animals have the intensest horror of blood. Here there is a surfeit of blood. They not only smell it, but see it everywhere; splashed in pools upon the floor, dabbled on the walls, smeared upon the clothing, dyeing the hands and even spattering the faces of the executioners. Around a hindleg of a steer is thrown a noose, at the end of a rope that runs over a pulley and down to a windlass. Before he realizes what strange thing has happened to him, he is being dragged backward, pawing, scraping, struggling, sometimes bellowing in his fright. As soon as he is hoisted, dangling by the leg, a man thrusts a sharp knife into his throat; the blood pours down off his muzzle; his wide-dilated eyes glaze, and merciful death comes to his release. When they drag him to one side and open him, they find his heart engorged and black blood standing in all his fevered veins. That blood is very hurtful. It is full of the refuse of the animal's system—excrementitious matter. The least injurious blood, the arterial, has been drained off pretty well, but a large part of the venous remains. In a few hours that animal, quartered, will be one of a pile on a huge wagon going down to the market to be sold, before the animal heat is thoroughly out of the meat. It would be interesting to know what, in all that, gives such dressed beef any points over any other beef.

By way of comparison, to learn if Chicago, Omaha, or Kansas City dressed beef is likely to be any worse or any better, let us see by what successive steps it gets to New York consumers. Of course, the percentage of it obtained within comparatively short distances from the place of slaughter is very much greater than could be got within a like radius about New York, but the bulk of it has to come from the distant States and territories whence our supply is drawn. The important fact has to be borne in mind that these points are one thousand miles nearer to the source of production than New York is, which shortens by one-half the fear-inspiring and exhausting ordeal of the journey for live cattle. Furthermore, the reduction cuts off that part of the travel that is hardest for them to bear, when sleeplessness, fatigue, fever and bodily injuries through actual violence have made them least capable of endurance. They reach the great stockyards at Chicago, Omaha, or Kansas City in good condition. The rules of these stockyards, though probably made to increase the profits of those undertakings, all further our getting the best quality of beef at the lowest possible prices. The animals must be all fed and watered before they are weighed and without such weighing they cannot be sold. As feverish cattle and those in unhealthy condition will not eat, time must be given for them to regain their normal condition. The lowest time that cattle can be pushed through the stockyard stage of their progress from the ranch to the table is twenty-four hours, and this, if any reason therefor appears, may extend to several days. Then there is a rigid inspection by reliable officials, that prevents any diseased or injured beast being sent to the slaughter house for conversion into human food. Up to this point, it will be observed, nature, geographical limitations, and interest of outside parties not concerned in the slaughterers' results, all conspire to land the animal in the Western abattoir in better condition to be converted into good food than it is reasonable to hope that he could reach a like point in New York. From this point on, all depends on the skill and care with which the converting of him is done. In either of the large slaughtering establishments, Swift's or Armour's, the processes may be said to have attained perfection. Let us review them briefly, as noted in the former concern.

Each beast for slaughter is driven into a narrow separate pen, the cleanest place he was ever in, where there is no sight or scent of blood to alarm or excite him. A man standing upon a boardwalk above, stuns him by a blow, delivered with a heavy sledge, upon his forehead. The concussion causes an abnormal rush of blood to his head and neck. Before he regains consciousness he is drawn out on the "bed" of the slaughter house, is hoisted by a chain attached to his hindlegs, his forelegs are spread wide apart, and one powerful slash with a long keen knife cuts through his neck almost to the back-bone, so that his head seems nearly severed. The blood gushes out in a torrent, draining both arteries and veins. The utmost care is taken that this shall be thoroughly effected, as upon it depends, in great measure, prevention of the tendency to decomposition that is inevitable where the blood is left standing among the muscular tissue.

In all the subsequent handling for removal of the intestines and other internal parts, skinning, dividing into halves, washing and drying—the details of which need not here be gone into—from the time that the beast is first hoisted up until he is finally stowed away in the cooler, his flesh never touches the floor, and of all the forty-two men who handle him on the way, each doing some one particular thing, and all working with the regularity of machinery and the speed of lightning, not one has laid a dirty finger upon him. There seems to be an almost morbid fear of harboring somewhere about the place germs of decomposition that might taint the meat. The first element of security attained, that of thorough draining out of the blood, is shown by the condition of the meat and by the fact that the heart, when taken out, is always found to be perfectly empty. But that is only the beginning. The men whose department of the necessary handling compels them to get blood on their hands, must wash them instantly at the spouting hose held near them, and never touch a stained finger to the meat after it has been washed. Not only is the blood run down out of sight to the floor below, where it is instantly put into treatment for conversion into a valuable fertilizer, but every spot that is spattered on the cement floor is immediately washed down with constantly pouring streams of water. The men are required to keep their bodies perfectly clean; must change their clothing entirely at every resting spell—to facilitate which a laundry is maintained in constant operation in the slaughter house, and practically unlimited supplies of working-clothes are provided. All odors that might prove deleterious, and all dirt of every kind, are forbidden.

The meat having been carefully trimmed, freed from all ragged edges, and even suspicions of bruises, and very carefully washed and dried, is hung in the refrigerators, in a temperature of 38 deg F., where it remains forty-eight hours. Then it is shipped in refrigerator cars, at the same temperature, to all the cities and towns in the Middle and Eastern States, enabling everywhere an ample supply of the best beef in the market at such prices as never prevailed prior to the introduction of this service, far below those commanded wherever local slaughterers monopolize the business. At least a week elapses from the time of slaughter until the meat reaches a market at so remote a point as New York or Boston, so that it is upon arrival in perfect condition for the table; but meat thus refrigerated, after such elaborately careful preparation to keep it sweet, can be kept out of refrigerators then for two days, even in the very hottest weather, and still be perfectly sweet and good, or it may be kept for an indefinite length of time at a moderately low temperature. That it withstands conditions that would be ruinous to meat prepared as is customary in New York, or nearly all other local slaughter houses, is sufficiently demonstrated by the unexceptionable excellence it uniformly shows in the remote English markets to which it is regularly shipped.

Enough has been said to show to any intelligent and disinterested person the great advantages possessed by the Western dressed beef in point of quality. That it is cheaper than New York dressed beef any one may satisfactorily ascertain by comparing its prices with those demanded by New York butchers for what they are pleased to offer as the latter, but which, in reality, is very generally the former. The reasons why it can be profitably sold at lower prices in this market than real New York dressed beef, are as cogent as any of those given for its being better. Primarily, freight is saved on the enormous amount of offal and refuse in the live animals. Carrying all that stuff a thousand miles costs a great deal. Then all that is convertible into fertilizing material—and the blood is especially valuable for that use—is saved and worked up at the Western slaughter houses, where it is within easy reach of a market for all of it that can be produced. The hides command a higher price—owing to the care exercised in getting them off and handling them—than green hides do in the East as they are furnished from our slaughter houses. The cattle have lost much less in weight at the time of killing than they would have through 1,000 more miles travel. The cost of ice for the refrigerator cars is offset by the expense and delay of caring for live stock. Finally there is that inevitable reduction of the ratio of expenditure to production that inheres in all vast businesses and gives them so powerful an advantage over small concerns. Fortunately for meat consumers, Chicago dressed beef has "come to stay."

Now, let the reader prepare for a contrast of nastiness as found in a description of the manner in which the cattle are killed and dressed at Fray Bentos in Uruguay, where the celebrated Liebig Beef Extract is made. This is written by an eye witness, and we quote it from the *Commercial Bulletin*. After perusing this, one feels thankful that we do not have to depend upon this source for our dressed beef, indeed not even for our beef extract. We can obtain a better beef extract prepared in a cleaner way from the Western abattoirs.

Now brace your nerves for some unpleasant sights and let us follow the employe who has been detailed for the purpose and view the process of converting a huge, full-blooded ox in the pasture into a few spoonfuls of brownish liquid. The corrals are a little way out on the grassy plain, connected with the slaughtering yard by a stockade-bordered lane. The cattle are driven into these corrals or paddocks, fifty at a time, and supplied with water, but no food. Skirting the lane is a narrow platform, about the height of the animal's horns, leading down to a smaller paddock, surrounded by a similar elevated pathway, with a bridge over the opening into the galpon, which is further closed by a movable beam. Below the bridge is a low, square, iron truck on a tramway which runs into another galpon, branching into two parallel lines, so that trucks may pass one another.

Now watch closely what happens. A villainous-looking Guacho, who evidently finds pleasure in his work, mounts the stockade and takes unerring aim with his lasso at the biggest and most powerful ox. One end of the lasso is attached to a winch, turned by steam, which hauls the astonished beast, slipping and stumbling and pushing aside the other animals in his way, till his head touches the fatal beam upon which stands the matador or killer, who holds a short, broad blade, sharp-pointed knife. With one blow of this weapon, delivered close behind the horns, he severs the spinal cord, and the huge victim drops like a lump of lead, without a struggle, upon the iron truck in waiting. The lasso is then disengaged, and the truck, propelled by two men, is pushed into an adjoining shed, where one hundred men, silent but busy as bees, are skinning and cutting up carcasses.

Following the truck, we observe that one side of this great shed is lined with poles, for hanging meat upon, and the other side is occupied by a flat, slightly elevated, stone-paved place, upon which the dead cattle are laid. It reminds one of the marble slab at the morgue, and the sight of the long building, splashed with blood from end to end, the pavements running rivers of clotted gore and fifty corpses being dismembered at once by half-naked, blood-bespattered men, is ghastly and spoils one's appetite for meat, for many and many a day.

Confining our attention to the one especial carcass, we see it hauled on to the stone-paved platform by means of a lasso attached to a horse, in position convenient for the skinner. The latter worthy, a wild-looking Uruguayan spattered with gore from top to toe like an Aztec priest of the sacrifice, begins operations by cutting the animal's throat, letting loose another river of blood, so hot that it seems to steam as it seeks the gutter and emitting a sickening odor of freshness. The hide is then torn off with marvelous rapidity and—horrible to relate—the huge carcass moves and struggles, and a faint bellow is heard. No doubt the severance of the spinal cord has rendered the poor beast dead to all sense of feeling, but muscular action remains.

However, in less time than it takes to tell it, he is divided into a hundred pieces, and with lightning-like rapidity the parts are sorted and carried off in different directions. While yet warm and quivering, every particle of meat is cut from the bones, hung upon the poles that line the other side, and the skin put to soak in a bath of brine. The minutest scrap is preserved and utilized in some shape—even to the entrails, hoofs, horns and skull. The bones are ground into powder and mixed with what remains of the meat after the juice has been taken out for the extract, and, together with the blood and hide trimmings, are made into fertilizer for the soil, which is said to be better than any guano.

To return to our skinner His knife is sharp as a razor and he uses it with incredible swiftness and dexterity. It requires just eight minutes to skin an ox and cut it into a hundred pieces, and we were informed that it can be done in five minutes.

Soon as it is cooled, the meat on the poles is cleared of every particle of fat and put to stew in large, oblong caldrons, in which the water is kept below the boiling point, for it is a peculiarity of the mixture that it contains no matter not soluble in cold water. A thin soup is thus obtained which is carefully skimmed and strained so that the smallest trace of grease is removed. Then the soup is subjected to a series of evaporations, growing thicker and thicker, till it finally acquires about the color and consistency of sorghum; which when cool becomes a jelly and is ready for use. It will be observed here that in making this brand of extract all albuminoids are carefully excluded, thus making this extract absolutely valueless as a nutrient. We are told that one hundred oxen are killed, skinned and cut up in an hour as an average amount of work, and that in the height of the season 1,200 a day is the rule, or the neighborhood of 15,000 in seven months. Why operations are suspended for the remainder of the year I do not know.

With this description of the methods used in the three great centers of beef killing, which source does the reader prefer, the West, New York, or Uruguay? The decision can be easily guessed.

WISE SAYINGS.

To owe is human, to pay divine.

Want of decision is want of interest.

Great difficulties bring out great virtues.

The sweetest fruit grows nearest the ground.

Better part with your dignity than your safety.

Next to living with honor is to die with honor.

Discretion is the salt, and fancy the sugar of life.

Discrimination detects errors, good nature excuses them.

A queer cut of the coat represents a crochet in the brain.

Commend not a man for his beauty, neither abhor a man for his outward appearance

Be not overwise in doing thy business, and boast not thyself in the time of thy distress.

It is not meet to despise the poor man that hath understanding, neither is it convenient to magnify the sinful man.

THE SUCCULENT CLAM.

ITS MANY VIRTUES, MEDICINAL AND OTHERWISE.

We all necessarily eat to live, and it has been reproachfully alleged against the human race that a good many of us appear to live mainly to eat, yet comparatively few seem to realize that eating is anything more than gratification of taste and nutritive replacement of wasted tissue. But it may be much more to the intelligent eater, the one who comprehends that health or disease, happiness or misery, perhaps we may even say good morals or bad, are almost wholly matters dependent upon proper or improper alimentation. A right-thinking medico-legal writer has affirmed that no confirmed dyspeptic is thoroughly sane or should be deemed morally responsible for acts of violence perpetrated when his malady is gnawing at his vitals. But, without going to such an extreme, it must be apparent to every one that impaired digestive functions play the mischief with our physical, domestic, social, and even our business well-being, affect our mentality and shorten our existences. And what causes such impairment? Improper eating. We get into the habit of eating "whatever comes handiest," or "what we are used to," or we cultivate depraved appetites for rich and outrageously seasoned food, and naturally we suffer the consequences. Do we reform the evil conditions we have established by reforming our habits, giving to our stomachs, with thoughtful care, the aliment our systems demand, in accordance with their ever-changing requirements? Few of us do. Generally we take some pills, "give the liver a shake-up," and go right along in the old ways. Yet kindly Nature offers to us, in the infinite variety of food with which fields, forests and waters abound—particularly in this favored country—not only the aliments to nourish those who are well and keep them so, but to restore health to those who are sick, if they only know how to avail themselves of the means thus proffered. And of all Nature's choicest medicines, presented temptingly under the guise of a delicious food, none is superior to the common clam, or quahaug, which is found in abundance all along our Atlantic coast, from Cape Cod to Florida. Why the scientists should have bestowed upon this succulent bivalve the scandalous name of *Venus mercenaria* may be left to query and imagination; the Indian appellation "quahaug" is certainly preferable for common use. But no matter what it may be called, it deserves to be held dear in remembrance as first and best of the numerous family to which it belongs and as one of humanity's best boons.

An unfounded prejudice against the clam exists in the minds of many persons who believe that it is tough and indigestible. And feeble-minded, would-be witlings have fostered that error by their alleged jokes about "the leatherny clam" and the "indestructible baked clam." But in fact the clam is only tough and india-rubbery when man has ignorantly maltreated him to make him so. Providence never intended that the quahaug should be cooked, any more than the strawberry. Both are finished products, masterpieces in their respective kingdoms, as they come fresh from the hand of Nature, and it is simple brutality to put either near a fire.

The sand clam, *Mya arenaria*, is an altogether different mollusk and should be cooked. Probably the nicest way to prepare him is to stuff him, through his siphon, with finely minced and highly seasoned salt pork; then, after folding back the siphon inside, wire the shells tightly together and bake the clam in an oven There are various ways of making the sand-clam palatable, but that is the best, and an experience of its results will fasten a joy in the remembrance of an epicure. The surprising "geoduck," or giant clam of the North Pacific coast, belongs to the sand-clam family (the *Myidae*), but is altogether too fearfully enormous to be contemplated from a culinary point of view. The recipe already recommended would probably be a failure if applied in the treatment of a mollusk having a siphon thirty inches long and with capacity for a half-bushel, more or less, of minced salt pork; and that is the sort of clam the "geoduck" is.

Another monstrous clam found in the China sea and the South Pacific and Indian oceans belongs to a third family, the *Tridacnidae*, and more resembles in personal appearance our beloved quahaug, though of course upon a stupendously magnified scale, since his shells are often upward of two feet in length and specimens have been found weighing, individually, as much as 500 pounds. Whether anybody attempts eating him or not, we have no present means of knowing. There would seem to be serious difficulties in consuming him as one should the quahaug, or round clam, viz., by swallowing him whole; and the boldest *chef de cuisine* or gastronomer might well be dazed by the idea of worthily and satisfactorily cooking such a gigantic mollusk. If the French philosopher was right in figuring that humanity in the Adamic age attained an average height of about 120 feet, then perhaps there was a time when Tridacna was admirably suited to his surroundings and possibly Noah, late as he came along in the world's chronology, was still man enough to enjoy as a morning appetizer—when the brown taste was in his mouth after a night's tussling with the juice of the vine—a half-dozen or so full grown clams of that sort, fresh off the ice.

But, in these degenerate days, we find sufficient reason to be amply satisfied with the dimensions of our ordinary round clam and to take delight in its quality, notwithstanding its ominously suggestive scientific name of *Venus mercenaria*. The family to which it belongs—the *Veneridae*—embraces over two hundred species, scattered almost everywhere that salt water is found, over the surface of the globe, and few of them are not at least good, but the one whose praises we exalt, our own beloved quahaug, is best of all. The red man, long before the white brought him rum and redemption, knew the virtues of the round clam and his appreciation of them was so high that he not only feasted upon its juicy flesh, but made his money (wampum) of its shells. There is something fascinating, by the way, in the idea of ordering at a restaurant bar "a peck of raw clams" and paying for them with their own shells. Of course, the aboriginal custom varied slightly from that, but the underlying principle was the same. It is altogether possible that this reference to the Indian's fondness for clams may inspire somebody to cite the Indian clam-bakes, which are traditional in Rhode Island and Connecticut, as precedents for the cooking of the quahaug. If so, somebody will be wrong. Even if the Indian did cook the clam, it would only attest his savagery; but he did not, if the appreciative narrations of old-time gastronomic experts are to be believed. He simply placed it among sea-weed, on heated rocks, where it would be sufficiently warmed through to cause its delicate aroma to arise in a fragrant steam for the perfecting of the flavors of the game, fish, sweet corn, etc., imposed in the pile above it. Did he eat the clam thus warmed? That is open to question. He may have done so, for his gastronomic perceptions can hardly be supposed to have been perfect; but the probability is that he gave the partly cooked mollusk to his squaw, who was doubtless sufficiently rejoiced thereby, the feminine taste in matters of good eating being seldom nicely discriminative, in any race. As for himself, when he chose to delight his palate with this luscious morsel of "sea fruit," we may be sure he took it *au naturel*. His baking—or, rather, taking the aroma from—the clams to flavor his other meat, was wasteful and might perhaps be condemned by a stern economist on that ground; but, who that has ever eaten a beefsteak *au Chateaubriand* will venture to censure his epicurean extravagance—particularly when the supply of clams was inexhaustible and cost him nothing.

Styling the quahaug "sea fruit" is by no means such a fanciful exaggeration as may at first sight appear. In one respect it very much resembles the orange. That which gives it value is its juice. The enclosing fibre is nutritive and—when raw—tender as a maiden's first dream of love, provided you do not seek demonstration from those deep-sea quahaug, big as a baby's head, which are rich in juice but too tough for good eating. But no matter about the muscular tissue, or fibre, of the clam; its real use is simply to keep the juice in, just as the fibrous cells of the orange perform a like function. We eat it, for its flavor is pleasing, it is nutritious and it is very easily digested—provided we have not toughened it by cooking—but what we are really after all the while, whether we realize the fact or not, is the juice. And no food of which we can partake is so potent in restorative and nutrient qualities as that same juice. This has been matter of traditional knowledge, practically always, among dwellers by the seacoast, but only since our civil war has the information spread inland for the enlightenment of communities in which the actual clam is never seen and experience of him is only had by consumption of his juice, which has now become a staple article of commerce. When thousands of our soldiers returned to the North suffering from chronic derangements of their digestive organs contracted in Southern camps and prisons, experience proved that no medical treatment was so effective in restoring them to health as the liberal use of clam juice. Many who had been given up by their physicians to die, from whose emaciated frames vitality had almost fled and whose stomachs and bowels rejected all other forms of nutriment, even in minute quantities, were saved simply by this natural remedy. Like almost magical effect is observable where it is given to children suffering from summer complaint and marasmus. The little ones assimilate it, draw strength and color from it and thrive as if it were the elixir of life. But one does not need to be really ill to appreciate the benefit of clam juice. Its flavor commends it to the gastronome in health as highly as its medicinal virtues qualify it for regard in case of sickness. It sharpens appetite, when served as bouillon and it aids digestion greatly. As a recuperative draught, the morning after one has been rather merry than discreet, nothing is its equal: for its action upon the nerves of the stomach and assimilative organs is promptly stimulative without being inflammatory, as all alcoholic "pick-me-ups" are. Another thing greatly in its favor, for this particular use, is that its flavor, decided and piquant, is acceptable to the palate when almost anything else would be rejected. And this quality enhances its value as a relief—and, in almost all cases, a ready cure—for the unspeakable misery of sea-sickness. Ladies, too, will find a bowl of clam bouillon very much more invigorating and beneficial than tea, when in a nervous or depressed condition, or weary from a day's shopping and sight-seeing. And, not only will its immediate remedial effect be better than that afforded by the temporary stimulus of tea, coffee, or drugs, but, while those things inevitably have an injurious effect upon the nerves, clam juice builds up and strengthens the nervous system, doing permanent good as well as affording momentary relief.

The epicure is prone to affirm that clam juice is in no otherwise so enjoyable as from the freshly opened clam, but that limitation is open to qualification, if not to question. It certainly cannot be true concerning clams freshly dredged from muddy bottoms, unwashed and opened carelessly by fellows with dirty fingers. The mollusks should be, for at least a week after they are taken from their native beds, kept in crates where clean tide water washes them constantly, and then, when they have been thoroughly cleansed, both internally and exteriorly, opened in neat and cleanly fashion. Then they may indeed be likened unto the strawberries of the sea. But it is not easy to get them so, except at a few isolated spots on the sea-coast, any more than it is practicable for families generally to keep them properly and in good condition in ice-boxes or cellars and serve them in hollowed blocks of ice after the admirable fancy style of first-class restaurants. And the clam juice, in its normal condition, cannot be kept during any considerable length of time after it is extracted from its source. Even the somewhat liberal proportion of sea-water it contains, and to which it doubtless owes some of its medicinal virtues, is not sufficient to preserve it from speedily decaying and becoming offensive. It may, however, be effectually preserved by special treatment, the principal agency in which is heat, and heat applied to it is not detrimental, as in the case of the whole clam, since now there is no tissue to toughen. Indeed heating to the extent of very considerably reducing its volume by evaporating its excess of water and so condensing its strength, as is the practice in preparation of Burnham's "Clam Bouillon," is a very decided advantage, not only through ensuring its preservation in any climate, but by enhancing its economic value for family use.

Since it has been ascertained by eminent medical and chemical authorities that the clam contains iodine and several other of the salts which make codliver oil so valuable and that therefore in addition to clam bouillon being a delicately flavored edible it possesses also the medicinal virtues of codliver oil without the nauseating flavor, clam bouillon has become very popular among the weak and debilitated.

According to commercial reports the clam now ranks next to the oyster in popularity and is a very close second to that bivalve in value financially, to the country; but when its work is properly appreciated and the knowledge of the excellence and usefulness of its prepared juice—as offered in the form of Burnham's "Clam Bouillon"—is general, it will no longer hold a secondary place in relation to either the palates or the pockets of the American people.

MISCELLANEOUS.

THEY STAND TOGETHER.

Black Sandy Patterson, the grocer, was sitting in his store when Yellow Jake entered.

"How's business, Sandy?"

"Sorter slow, ez de terrapin said ter de grayhoun'."

"Folks is 'plainin' mightily all ober de country, ain't da?"

"Oh, yas," replied Sandy, as he stretched himself and yawned. "Folks is allus 'plainin' 'stead o' praisin' de Lawd."

"Yas, dat's putty much de fack. Say, Sandy, what is aigs wuth?"

"Does you wanter buy or does you wanter sell?"

"I wants ter buy."

"Well, den, da's 15 cents er dozen."

"Whew! da's riz' awful. Las' week da wan't but 10 cents."

"I knows dat, but da's way up yander now."

"Is it becaze da is so skace?"

"Oh, no, dar's plenty o' aigs."

"Den what is de cause?"

"Oh, on account o' Bill McKinley."

"What's Bill McKinley got ter do wid de price o' aigs?"

"I doan' know nothin' 'bout dat, but he's in de Congress, an' says dat we has ter rize on everything."

"Yas, but he ain't got nuthin' ter do wid you."

"Oh, yas, he has in er measure. You see he is er Congressman an' I'm er justice o' de peace, an' us men dat runs de guberment musn't go back on one nuder. You write ter Mr. Bill McKinley, an' ef he says fur me ter let you hab 'em cheaper, I'll do it."—*Arkansaw Traveler.*

Somewhat Shady.—Clerk (to patent medicine man)—"Here is a curious credential from one of our customers."

Medicine Man—"Read it."

Clerk—"Before I took your elixir my face was a sight. You ought to see it now. Send me another bottle for my mother-in-law."

Irish Veracity.—The Irish are so proverbially truthful that there is veracity to be found even in their lying, as the following will amply prove: In an Irish daily there recently appeared this advertisement: "Wanted—A gentleman to undertake the sale of a patent medicine; the advertiser guarantees it will be profitable to the undertaker." Would that all patent medicine advertisers were equally truthful!

Gratitude.—A physician in this vicinity, says the Boston *Medical and Surgical Journal*, was recently called to a family which he found in such destitute circumstances that he gave in addition to his prescription a five dollar bill. Happening in the next day, he discovered that his gift had been thus spent: three dollars to the priest and two dollars to get another doctor.

Advertising That Pays.—On Friday an advertiser who has sent us a good many checks, says the *Northwestern Lumberman*, comfortably filled a good-sized arm chair, and during his stay talked considerably about advertising. When I buy advertising, he said, I want to feel assured that the paper in which I have space goes to the men whom I desire to reach, and further that the people to whom it goes have a good opinion of it. I place my advertising on that basis. I used to think that I did not receive my money's worth unless I could trace a certain number of sales to some particular "ad." I am over that. I meet the demand of machinery in my line, and having done that I want to be known, and known all the time. I advertise, say in a dozen papers, and a man comes along and buys a big bill of goods. Can he tell me what particular paper directed him to my works? No, not once in a hundred times. I have been advertising for years so he may know where I am, and when he wants to buy he comes to me. Make first-class machinery, let everybody know where the machinery can be had, and then treat your customers white is the way to get business. That man knew what he was talking about.

ADULTERATION.

HONEY AND ITS ADULTERATIONS.

NEARLY ONE-HALF POSITIVELY ADULTERATED, MANY OF THE REST DOUBTFUL.

BY H. W. WILEY, CHIEF CHEMIST.

[From Report of U. S. Dept. of Agriculture.]

The samples of honey described in the report were liquid or strained honey, or comb honey, packed in glass jars. The examination did not extend to comb honey in frames.

Perhaps there is no other article of food which has been so generally adulterated in the United States during the last twenty years as honey. The ease with which sophistication could be practiced, the cheapness of the material used, and the high price of the genuine product have presented temptations which the manufacturer, producer, and dealer have not been able to withstand.

As long as honey was sold wholly in the comb, difficulties in the way of successful sophistication were so great as to practically preclude its practice. The impression to the effect that comb honeys are adulterated was probably produced rather by ingenious attempts to manufacture the spurious article than by the commercial success of the enterprise. Artificial comb honey has not been regarded as a possible article of commerce by many scientific men.

Many samples of comb honey containing only glucose have come under my observation, but in all these cases the comb, presumably after the separation of the honey by a centrifugal machine, had been placed in glass bottles, and the glucose then added. I have never yet found a sample of comb honey, sold in the frame, which was artificial, except in the use of comb foundation.

Strained honey, that is, honey separated from the comb, is pure when it contains only the materials of a liquid nature mentioned in this definition. A pure honey is the nectar of flowers and other saccharine exudations of plants, gathered by bees and stored in cells built at least in part by the bees themselves. Pure strained honey may also contain such accidental particles as parts of bees, pollen, fragments of comb, etc., as would naturally be found therein.

PROPERTIES OF PURE HONEY.

Polarization.—A pure honey has, with rare exceptions, at ordinary temperatures a slight left-handed rotary effect on a plane of polarized light. Measured as degrees on a cane-sugar scale with normal sugar weight, a pure honey will rarely show more than —20 deg. at 20 deg. C. A greater number than this may not be conclusive of adulteration, but may well be looked on with suspicion.

Water.—The content of water in a pure honey may vary from 12 to 20 per cent. It is rarely as low as 12 and does not frequently exceed 20 per cent.

Color.—The color of pure honey may vary from almost a water white through various shades of amber to deep brown or black. The source from which the honey is taken, the manner in which it is stored, and the length of time it has been kept, are the chief factors in determining variations in color. White clover gives almost a colorless honey, while golden-rod and other highly colored flowers produce a deeper-colored article

Ash.—The content of ash is very small, varying from a mere trace to 0.30 per cent. A higher content of ash than this will be due to dust sifting over the flowers while the bees are at work, or to some tampering with the product after the bees have finished with it.

Sucrose.—The amount of cane sugar varies from nothing to 8 to 10 per cent, according to quantity of cane sugar in the nectar and the extent of inversion to which it is subjected in passing the organism of the bee.

Reducing Sugar.—In a pure honey there should be a large percentage of reducing sugar measured as dextrose. This reducing sugar should consist of dextrose and levulose naturally existing in the nectar. Whenever the dextrose is in excess of the levulose it points to its artificial addition in the form of the glucose or grape sugar of commerce. The total quantity of reducing sugar measured as dextrose should generally fall between the limits of 60 and 75 per cent, although there are many cases where these limits may be transgressed.

We have thus far confined ourselves to extracts from Professor Wiley's report, but now in order to make this intelligible shall have to make some explanatory comments. Professor Wiley has not always held the opinions he does now; he formerly believed that comb honey had been successfully imitated, and when he became convinced that he was in error was not as quick to publish his change of opinion as the bee-keepers of the country thought he should. The result has been that those more directly interested in the honey trade do not bear the kindliest feeling to the professor and are not so ready to take his opinions as either conclusive or as bearing much weight. After a very careful review of the subject and a perusal of the various letters received from those who are accused of sophistication in this report, we have arrived at the conclusion: First, that it is impossible without analysis for any one, no matter how experienced he may be, to detect adulteration of strained honey when adulteration does not exceed 50 per cent. Second, that in the majority of the instances where the report finds that adulteration had been practiced, the honey as packed was just as it was received from the shippers, and thus the sophistication had been practiced upon the packers, who, not being able to detect it, necessarily sold the adulterated honey to the retailers. Third, there are several of the dealers whose honey was found to be so adulterated, who, if they did not know that the honey they sold was adulterated, which we think doubtful, certainly were guilty of deception by placing misleading labels upon the honey. Such a label, for instance as that of John Long, New York, which is fictitious and is used as a stock label by a large grocery house in New York. Another of these fictitious labels is that of Wm. Thompson, Wayne county, N. Y., no post office address given; this also being a stock label used by a honey firm in New York. Fourth, another source of error arose from certain firms packing honey under their trade marks, such as for instance the firm of Wm. McMechen & Son, who have for years used the term "Old Virginia" as a trade mark for all their best goods, and consequently when found on adulterated honey, which they probably were deceived in, is construed in this report as an attempted misrepresentation that the honey so trade marked was Virginia honey. In another instance a large and respectable Cincinnati firm was accused of misrepresentation for applying the words of "from the Italian Apiary, etc.," meaning thereby that the honey was from their store which bears the name "Italian Apiary." In the case of a large and well-known Boston grocery house, there is no doubt that they sold the honey found adulterated not for pure honey, but just as it was imported by them and as a confection. All these facts will appear from our quotations, and the letters from these houses, which we publish in full.

It may be said that this investigation and report, though it may injure some houses who were really innocent of any intent to wrong, will turn out to be a blessing in disguise, as it will compel all these houses to use greater care in purchasing and will open their eyes to the utter worthlessness of the guarantees and representations of the brokers from whom they bought the goods.

The first sample of honey we shall refer to is one examined by Prof. H. A. Huston, Lafayette, Ind., and numbered 23, bought from Rockwood Bros., Chicago, and put up by G. K. McMechen & Son, Wheeling, W. Va., labeled "Old Virginia Honey," with a sign around the neck of the bottle: "These goods are absolutely pure." There was found a heavy precipitate of dextrin, 11.380 per cent of sucrose, showing beyond a doubt that it was adulterated.

Next we come to eight samples analyzed by Prof. H. H. Nicholson, of Lincoln, Nebraska. Of these one bought of Wm. Hotaling, of Lincoln, and bearing the label of "McMechen Old Virginia," numbered 1764, was found to be adulterated with commercial glucose. Samples 1772, 1773, and 1788, also bearing McMechen's label, were found similarly adulterated. Samples 1789 and 1790, marked "Ritter California White Clover," and 1794, "Ritter Conserve Company" White Clover, and 1756, marked "Ritter Conserve Company Philadelphia Pure Honey, Cal.," were all found to be adulterated with glucose, cane sugar, and an excess of water. Some of these had as much as 50 per cent of glucose added, and samples 1756 and 1794 clearly indicated the addition of considerable quantities of cane sugar. The analyst makes the significant remark that many samples of spurious honey were provided with labels indicating that they came from California. The honeys delivered to commerce by the bee-keepers of California have been found almost always pure. The very honesty of the California bee-keeper is made a stock in trade for his less scrupulous Cis montane factor.

This remark of the analyst we believe to be incorrect, because we know that the bulk of the adulterated honey was bought from California shippers.

Among the samples examined by Prof. W. B. Rising, of San Francisco, who found only 18 per cent of his samples adulterated, a good showing for California honeys in their own markets. sample No. 12, claiming to be an Orange Blossom honey, put up by the San Jose Packing Company of San Jose, which he includes among the adulterated honeys, he gives the benefit of a doubt, because no known genuine orange blossom honey could be obtained for comparison. No. 15, labeled "pure extracted honey, put up by Risdon Cohn & Co., San Francisco," the analyst says, is quite without the limits of a genuine honey, it is probably a starch sugar or glucose very rich in dextrose. Its label, "pure extracted honey," has been used to cover a multitude of sins. No. 20, labeled "pure extracted honey, Castle Bros., San Francisco," contains apparently from 20 to 30 per cent of glucose. No. 65, labeled "Pure San Diego honey, bottled expressly for family use by C. G. Williams & Co., 417 Washington street, San Francisco," contains from 75 to 85 per cent of glucose. It grew chiefly in the corn belt of the Northwest and not in the flowers of California.

Prof. M. A. Scovell of Lexington, Ky., reports on one sample labeled "McMechen's Old Virginia Pure Honey, prepared by Geo. K. McMechen & Son, Wheeling, W. Va.," with an additional label around the neck which reads "These goods are absolutely pure." This sample was bought from Joseph R. Peeble's Sons Company, Cincinnati, O. It was found to be adulterated with a heavy confectioner's glucose about 40 per cent, or with glucose containing a large quantity of dextrose, about 60 or 70 per cent. Its low content of water would indicate the former method of adulteration. The analyst adds: "The capacity of 'Old Virginia' to produce honey would seem to be equal to that of California, judging from the frequency with which George K. McMechen & Sons' goods are found on the market. Although warranted 'absolutely pure,' it is evident that this firm depend on the glucose factory rather than the petals of the flower for their chief stock in trade."

Sample 103, labeled "Choice comb honey; made by Githens & Rexamer, Phila., and sold by R. J. McCombs, Cincinnati," had some comb in the bottle, but the greater portion was liquid. It was found to be another instance of the sale of "comb honey" which is a mechanical mixture of the comb with glucose.

Sample 103, labeled "Pure machine-extracted honey, from the Italian Apiary of Charles F. Muth, 976 and 978 Central avenue, Cincinnati, Ohio," sold in bottles by Joseph Peebles Sons Company, Cincinnati, Ohio, contains fully 50 per cent of adulterant. The machine alluded to in the label is, doubtless, the converter in which corn starch is changed into glucose in Buffalo and other places. This witticism is hardly dignified. We do not believe that Mr. Muth was aware that the honey was adulterated.

Sample 126, labeled "Muth's California honey," is almost pure glucose.

Sample 127 "warranted pure honey, put up by C. F. Muth & Son," is nearly half glucose.

Sample 135 is another spurious comb honey, manufactured by Githens & Rexsamer, Philadelphia.

Sample 136 is another of the fraudulent preparations of McMechen's Old Virginia brand.

Sample 140 shows that Githens & Rexsamer have worked the Cincinnati markets pretty thoroughly with their imitation comb honeys.

Samples 141 and 149 are two more samples of adulterated honeys bearing the labels of C. F. Muth & Son, and sample 144 is another of McMechen's Old Virginia.

Dr. Stephen P. Sharples of Boston reports on sample 9,524, bought from S. S. Pierce & Co., Boston, labeled "Miel de Table Suisse, from J. J. Hurlimann, Rapperswyl, Switzerland, Purveyor to hotels throughout Switzerland. S. S. Pierce & Co., sole agents for the United States," that it is a sample of the breakfast honey so enjoyed by travelers in Switzerland. It is almost pure glucose, very possibly made in America. The label in this case commanded a high price (40 cents).

Sample 9,526, bought from Tighe & Burke, 11 Charles street, Boston, was labeled "This honey is absolutely pure and unlike liquid honey that has been mixed with glucose to keep it from granulating; it will naturally candy or granulate and become a solid mass in course of time. Pure California White Sage Honey. Thurber, Whyland & Co., New York." Such a label as this is calculated to carry conviction to a hesitating heart. It is endowed with the natural granulating principle which pure honey has in a high degree, especially after extraction. The character of the adulteration is not clear, but it is apparently dextrose, probably the anhydrous variety.

Sample 9,547 is another of "McMechen's Old Virginia pure Honey." Specimens principally manufactured by the glucose bee. Dr. W. C. Stubbs of New Orleans had only one sample possessing any interest for us; it was marked "E. Turpin, New Orleans." It was adulterated with glucose. Dr. Shippen Wallace of Philadelphia found samples labeled "Virginia Honey" bought from Philadelphia Pickling Company. Another sample bought from the same concern and labeled "honey," some "White Rose Honey," put up by the New Jersey Preserving Company of Camden; "Choice Extra Northern Honey" from George D. Powell, New York; "Superior Extracted Honey" from Walker, McCord & Co., Philadelphia; "XXX White Clover California," sold by the J. O. Schimmel Preserving Company, Philadelphia; "Choice Los Angeles Honey," John Long, New York; "Choice California Honey, J. Ritter Company"; several samples of McMechen's "Old Virginia"; "Pure Honey" from Anderson & Co , Camden, N. J.; and "Strained Honey" from Max Ams, New York, all adulterated.

Prof. H. A. Weber of Columbus, Ohio, reports samples marked "California Honey put up by Williams Bros., Cleveland, Ohio"; another sample of "McMechen's Old Virginia Pure Honey," a "Strictly Pure Extracted Honey," Austin, Nichols & Co., New York; two jars of "Lutz Bros.' Pure Honey"; three specimens of "Muth's Italian Apiary Honey," one specimen of "Pure California White Sage Honey, Thurber & Whyland New York," all of which were more less adulterated.

Among the honeys analyzed by Dr. F. G. Wieshmann, New York, is sample 118, which bears a similar label and description to those examined by Prof. M. A. Scovell of Lexington and Dr. T. P. Sharples of Boston. The label and description are identical with the exception of the name of the wholesale dealer, which in two cases is Thurber & Whyland and in one case E. Brommond. This last-mentioned sample is unquestionably adulterated with glucose and sucrose. The report adds: "Nothing could illustrate better the utter meaninglessness of labels. Here we find one label and description applied indiscriminately to three samples of honey totally different in their composition." The sample examined by Professor Scovell is apparently genuine. Those examined by Drs. Weishmann and Sharples are undoubtedly adulterated but not to the same extent. It appears to be the habit of the enterprising dealer to arm himself with an assortment of altisonant labels and a pot of paste, and then to make a descent on a helpless pile of genuine and spurious packages of honey, applying the labels indiscriminately. Among others the following samples of honey were found to be adulterated, notwithstanding the "goody, goody" labels and pious warrantys upon them:

"Turpin's Genuine Strained Honey, Manufactured Expressly for family use; Ernest Turpin." "Choice Extracted Clover Honey put up expressly for table use; Leslie Dunham & Co., Pittsfield, Mass." "Choice Honey, E. A. & P. Walker, 137 to 141 Oakland avenue, Brooklyn, N. Y." "Pure Honey; Max Ams, New York." "California White Sage Honey; E. Brommond," and another with the same label already referred to. "Choice Honey put up by G. A. & J. Destler, 226 Java street, Brooklyn. Choice Extracted Honey from New York State." "Choice Comb Honey; Chas. Israel & Bro., N. Y." "Ritter's Pure California White Clover Honey; The P. J. Ritter Conserve Company, Philadelphia."

Among the samples examined by the chemical division of the Department of Agriculture we meet our old friend "Pure Old Virginia Honey," put up by that enterprising firm of George K. McMechen & Son, who seem to have left very few of the markets of the country untried with their products. The label, "Choice Clover Honey Israel & Bros., New York," is again made to do duty in securing favorable consideration for the inversion product of corn starch. The label "Ritter's Pure California White Clover Honey, the P. J. Ritter Conserve Company, Philadelphia, Pa," is again applied to a glucose mixture. Had a skilled botanist been doing this mixing, he would not have located the origin of a white clover sample in California. He would have stuck to wild sage or orange blossoms, and left the clovers for New England and New York. Several samples labeled "Pure Orange Blossom Honey, F. G. Strohmeyer, New York," and "Pure Clover put up expressly for Hopper, McGaw & Co., Balto.," were also found adulterated. Sample No. 8517 deserves a more lengthy reference:

No. 8517. Honey bought from Elphonzo Youngs & Co., 428 Ninth street, NW., Washington. Price 25 cents. Label: "Hoge's Horehound Honey; balsamic, expectorant, and soothing. A speedy, effectual and pleasant remedy for coughs, colds, asthma, bronchitis, consumption, hoarseness, and all affections of the throat, chest and lungs. A product of nature secreted in the petals of horehound blossoms and gathered by the honey bee. Price 25 cents. G. D. Powell, 81 and 83 Third street, Brooklyn, N. Y." A circular inclosed contains among other things the following:

"Hoge's Horehound Honey.—The story is rife that horehound honey is a myth, but we take the responsibility of assuring the world that pure horehound honey is a fact known to many of our citizens, and that it is produced in large quantities in several canons in this country, where the horehound plants grow in such profusion as to entirely choke out anything else around them. Mr. Hoge has gone to great pains and devoted several years to horehound honey, and has secured control of all that is produced in this country, and is creating a good demand for it. We therefore feel that he is justly entitled to any advantage which may come from our endorsement of the fact that pure horehound honey is a bona fide production of this country.—*Ventura County* (*Cal.*) *Republican.*

"This is to certify that to my personal knowledge the locality referred to by Mr. Hoge is covered with flourishing growth of horehound, from which large quantities of pure horehound honey are gathered by his bees. S. M. W. Easley, notary public, Ventura County, Cal.

"Hoge's Horehound Honey.—Wherever a bee flies within the virgin wilderness of Hoge's canon along the banks of the river, along the bluffs and headlands and deep leafy glens, the horehound plant blossoms in lavish abundance. It is the work of the honeybee to gather the sweet treasure, horehound honey, so divinely prepared, and bear it off, saying to those suffering from coughs; 'Eat! It is the soul of the blossom.' "

This sample, as will be seen from the analysis, was composed of a solution of cane sugar and some alcohol.

The results of these analyses made by ten different chemists, at different points throughout the United States, show that out of 500 samples of honey bought, 203 were found to be adulterated beyond a question, and of the rest the majority were doubtful. A sad state of things which compels those who want to be sure that the honey they eat is genuine, to confine their purchases to honey in the original comb and frame. It is a pity that our confidence in the good faith of many of our largest dealers in guaranteeing the goods sold under their label is thus rudely shaken. They will have to use more care in knowing that their goods are pure before guaranteeing them hereafter or they will lose public confidence.

The following letters received from some of the dealers referred to, are self explanatory:

FROM THURBER, WHYLAND COMPANY, NEW YORK

NEW YORK, May 24, 1892.

Editor of the American Analyst.

DEAR SIR:—We thank you for the opportunity to explain how our name came to be among the list of those putting up honey under a guaranteed pure label, which the Department of Agriculture found to be adulterated with glucose.

We can only say that if such was the case, we were ourselves deceived. We purchased the honey in California for pure honey from reliable parties, and bottled it here as received, placing our usual guarantee upon it—that all goods bearing our name are guaranteed pure and wholesome.

We were astonished when our attention was called to the results reported by the Department of Agriculture, and have since taken steps to have every lot of honey we purchase analyzed.

From the large number of reputable houses whose names are reported as having put up "pure California honey," which was found to be adulterated, it seems probable that a large part of the honey produced on the Pacific coast is adulterated by glucose, either by producers or dealers, before shipment to the East. And this emphasizes the necessity of National Legislation, like the Paddock Pure Food Bill, which would apply to Inter-State Commerce and prevent the shipment from one State to another of adulterated articles.

We send you a sample of the honey we are now packing and shall be pleased to have you test its purity.

Very truly yours,
THURBER, WHYLAND COMPANY.
F. B. THURBER, Pres.

FROM S. S PIERCE & CO., BOSTON.

BOSTON, May 21, 1892.

The Analyst Publishing Co.

GENTLEMEN:—Your favor of 23d inst., received, and we have to thank you very much for giving us the opportunity to explain how we happened to have an article, called "Miel de table Suisse."

Some twenty years ago, when our senior was in Switzerland, he met in various places customers of his from Boston and other parts of New England. He was constantly asked by them why he could not get the "Miel de table Suisse," which is served in all the hotels throughout Switzerland, and which, as we understand it, the landlords are required by law to offer to their guests, at every meal without charge.

Our senior went to some expense to find the maker of this product, to whom when found, he gave a sample order. We have imported the article in limited quantities ever since.

It was exhibited at the Centennial exhibition, but was not claimed to be honey at all.

We offer it to our customers for exactly what it is, the confection which is given to guests throughout Switzerland and which is known as "Miel de table Suisse." We take no responsibility in the matter whatever, and merely give to our customers what they ask us to get for them. Were the article labeled honey or pure honey, it would be a very different matter.

We beg to enclose herewith a label, which we place on every jar, and which explains itself,

Yours very truly,
S. S. PIERCE & CO.

This Jar contains a
compound which is served
at the Hotels throughout
Switzerland, is known as
"Miel de Table Suisse,"
and is imported directly
from Rapperswyl by
S. S. PIERCE & CO.

FROM GEORGE K. McMECHEN & SON CO.

WHEELING, W. VA., May 24, 1892.

American Analyst Publishing Co.

GENTLEMEN:—Your kind favor of the 23d, just to hand, and we are certainly very glad to hear from you on this subject. It always affords us great pleasure to meet with any publisher or any person interested in pure food products, as you evidently are. We have already seen and read the article you refer to, published by the Department of Agriculture. We have gone down to the root of this matter, just as far as any manufacturer could that is interested in keeping the standard of their goods up to the highest notch.

We have heretofore bought our honey direct from packers of California honey on the Pacific coast, and until this article came out we were firmly convinced that we were getting absolutely pure honey, direct from grower, but since we have been digging into this matter, we have learned from Chicago glucose manufacturers that they have for the last two or three years been shipping more glucose to the California coast than most any other section of the country. Now, gentlemen, there is but one conclusion to arrive at. This glucose must be used in adulterating the honey shipped to Eastern dealers, and we are firmly convinced that we have been religiously imposed on by unscrupulous dealers for the last three or four years. We think, gentlemen, that our position in the trade, as manufacturers, will bear us out in every thing we do, and in every package that bears our name, and you can certainly see from list of dealers mentioned in the report from the department, that our very best packers, honorable, upright business men, are all mentioned in this connection, and we do not think there is a single exception to this. We have always made it our aim to give our customers the very best goods that can be produced in every line, and we have made it a rule that every package bearing our name or brand of McMechen's Old Virginia goods, would prove up to the standard in every way, and you can believe us, gentlemen, that we are greatly pained at the display made by the Department of Agriculture in their last report

Hereafter we will have all honey received from the Pacific coast, analyzed before using, and we will also have a caution notice placed on every jar of honey leaving our factory, explaining our position in the matter, as we do not care to have our name appear printed as it did, in report recently published in Washington.

Yours very truly,
GEO. K. McMECHEN & SON CO.

FROM CHAS. F. MUTH & SON,

CINCINNATI, May 26, 1892.

The Analyst Publishing Company, New York.

GENTLEMEN:—Your favor of the 23d inst. is received, and highly appreciated. I have seen the report of the Chemical Division of the Agricultural Department, which has a tendency to degrade my character in the eyes of the public and to damage my business. I don't know what to do about it. But we are no adulterators.

The honey we produce amounts to comparatively nothing, while the quantity we buy and sell is considerable. The most of it is sold in original packages. Repacking is done only for the retail department. I admit that out of 100 barrels of honey, perhaps 15 to 25 are examined on arrival. We know our shippers, and satisfy ourselves as to the quality sent. The balance is not examined until sold, and I admit that a good many barrels may escape our attention. But if there is something wrong, it will soon be discovered. I am an expert on honey, not that I am infallible, but I shall consider the test by my own senses not inferior to the test of the best chemist in the country. My own judgment will certainly be my only guide in a purchase. Chemists, like the rest of humanity, are not infallible. The motives of these chemists are good, no doubt, but I am afraid that their methods are faulty, and they have done me harm.

Some years ago when I had a collection of different qualities of honey, such as clover, basswood, buckwheat, Spanish needle, golden rod, etc., made up for the instruction of our beekeeping friends, I left them with Prof. Wiley at his request. He gave us his report at the American National Beekeepers' meeting at Flint, Mich., if I remember correctly. The best that Mr. Wiley could say of the samples was that they were adulterated and that one was probably pure. Now, I knew that Prof. Wiley was wrong, for I knew that every sample was pure honey, i. e., if there is pure honey at all, or if we know anything. I was disgusted with the result of the analysis and refused to send Prof. Wiley any more samples. The gentleman may be an efficient chemist, and I don't wish to believe that he is malicious and prepossessed against me, but—I am no adulterator. Prof. Wiley's chemical tests should not be considered conclusive until further tests have been made. I have read of his reports the articles most damaging against me only; my time and aroused feeling preventing me from reading more. But from a favorable review of Prof. Wiley's reports by Prof. Cook of the Michigan University at Lansing, I see that most of my samples were pronounced genuine. I can't reconcile this with my knowledge of the fact that all must be either pure or adulterated, because all our small packages are put up in the same manner every time, and have been so for years.

Prof. Scovell refers to the machine with which beekeepers extract their honey and says, referring to me: "The machine alluded to in his label is undoubtedly the converter in which cornstarch is changed into glucose," etc.

This quotation seems malicious and out of place. Is Prof. Scovell ignorant of the existence of the machine which is employed by beekeepers to extract their honey from their combs?

Our store and warehouse as well as our packing arrangements and every package of honey in our possession is open for inspection to every respectable visitor. We have no secrets.

Very respectfully yours,
CHAS. F. MUTH.

FROM THE JOSEPH R. PEEBLE'S SONS COMPANY.

CINCINNATI, June 3, 1892.

The Analyst Publishing Company.

DEAR SIRS:—Yours of the 1st inst. to hand. We have no explanation to make you in regard to the honey that was found in our store that you claim to be adulterated, except that we bought the goods from reliable firms and supposed they were pure. When we found out that they were not, or that you complained that the samples did not stand the test, we immediately wrote to McMechen & Son, from whom we had bought the bottled honey and notified him of what you had written us and shipped back every bottle that we had in our house. We do not knowingly sell adulterated goods of any kind.

Anyone who knows our Mr. Joseph S. Peebles, president of this company, knows that he would not knowingly or willingly sell any article of food products that he had any doubt as to its purity. On the contrary his aim has been for years to buy the best that money could buy. We have no doubt been deceived and sold goods unintentionally that have been forced upon us by unscrupulous manufacturers.

We will gladly assist you or anyone else who tries to protect the public, but the man that you should wage your war against is not the innocent retailer, but the party who manufactures the goods.

Yours respectfully,
THE JOSEPH R. PEEBLE'S SONS COMPANY.

FROM PHILIP J. RITTER CONSERVE COMPANY.

PHILADELPHIA, June 4, 1892.

Analyst Publishing Company.

DEAR SIRS:—Your favor received. All we can say in reply is this: We turn out the honey as we receive it, and have never suspected that anything could be the matter with it. We have for years, ever since we started to deal in honey, handled the product of one apiary in California, which has the reputation of producing the finest article in the State; occasionally, however, we have been out of this article and have been obliged to buy elsewhere, particularly during the past season, and if any adulteration has taken place, it must have been done before the honey entered our establishment.

Yours truly,
PHILIP J. RITTER CONSERVE COMPANY.
F. WM. HOFMANN, Secy.

ALUM BAKING POWDERS.

THE LAW OF MINNESOTA AND HOW IT IS CARRIED OUT.

STATE OF MINNESOTA,
DAIRY AND FOOD DEPARTMENT.
ST. PAUL, MINN., March 16, 1892.

To whom it may concern:

Section one and two of the Food Laws of Minnesota, relating to the sale of Baking Powders, are given herewith. Also a list of Baking Powders, found upon analysis, to contain *Alum.* All dealers that have Baking Powders in stock, bearing any of the herewith list of Brands, and not Labeled according to Law, are hereby given WARNING that said Brands of Powders must be Labeled (see Sec. 2). Analysis will be extended free of charge on all Baking Powders sent in prepaid by Minnesota merchants.

The Department Inspectors will call upon all dealers from time to time and be fully empowered to act for the State.

CHAPTER 119, GENERAL LAWS 1891.

SECTION 1. Every person who manufactures for sale within this State, or offers or exposes for sale, or sells any baking powder, or any mixture or compound intended for use as a baking powder, under any name or title whatsoever, which shall contain, as it may appear by the proper tests, any alum, in any form or shape, unless the same be labeled, as hereinafter required and directed, shall be deemed guilty of a misdemeanor, and, upon conviction, shall, for each offense, be punished by a fine of not less than twenty-five (25), or more than one hundred (100) dollars and costs, or by imprisonment in the county jail not exceeding thirty days.

SEC. 2. Every person making or manufacturing baking powder, or any mixture or compound intended for use as a baking powder, which contains alum in any form or shape, shall securely affix, or cause to be securely affixed, to every box, can or package containing such baking powder, or like mixture or compound, a label, upon the outside and face of which is distinctly printed in legible type, no smaller than "Brevier Heavy Gothic caps," the name and residence of the manufacturer, and the following words: "This Baking Powder Contains Alum." Any person violating the provisions of this section shall be deemed guilty of misdemeanor and shall, for each offense, be punished by a fine of not less than twenty-five (25), or more than one hundred (100) dollars and costs, or by imprisonment in the county jail not to exceed thirty days.

SEC. 3. The having in possession by any person or firm, if any of the articles or substances hereinbefore described, and not labeled, as provided by section two (2) of this act, shall be considered *prima facie* evidence that the same is kept by such person or firm in violation of the provisions of this act, and the State Dairy and Food Commissioner, his assistants, experts and chemists, or any one thereof, are hereby authorized to seize upon and take possession of such articles or substances, and upon the order of any court which has jurisdiction under this act, he shall sell the same, giving full notice of the time of such sale, and of the fact that such compound or substances contain alum, and the proceeds of such sale shall be placed to the credit of the State Dairy and Food Commissioners' fund.

The above sections 1 and 2 are sections of Food Laws that are now in force in Minnesota, relating to branding of baking powders.

A. K. FINSETH,
Dairy and Food Commisioner.

ALUM BAKING POWDERS.

Atlas—Reed, Murdock & Fisher, Chicago.
A. & P.—Atlantic and Pacific Tea Company, New York.
Austin's Choice—J. G. Flint, Milwaukee.
American—George P. Vosbrink, Chicago, Ill.
Allison's—Allison Manufacturing Company, Janesville, Wis.
A. K.—Anthony Kelly & Co., Minneapolis.
Active—Bell, Conrad & Co., Chicago, Ill.
American Tea Company's Prize—American Tea Company, Minneapolis, Minn.
Bon-Bon—J. C. Grant Baking Powder Company, Chicago, Ill.
Berkey's True—Berkey, Talmadge & Co., St. Paul, Minn.
Big Can—Condell Manufacturing Company, St. Louis, Mo.
Big Bonanza—Allen, Moon & Co., St. Paul, Minn.
Brookman's—Brookman Baking Powder Company, Chicago, Ill.
Big Boom—E. J. Cotz, St. Louis, Mo.
Boston Baking Powder—Boston Baking Powder Company, Fairport, N. Y.
Century—Conrad, Bell & Co., Chicago, Ill.
Crystal—A. B. Gates & Co., Indianapolis, Ind.
Cream Puff—French, Palmer & French, Rochester, N. Y.
Corliss Baking Powder—Corliss Baking Powder Company, Cincinnati, O.
City Mills—Kent & Brady, St. Paul, Minn.
Chicago Yeast Powder—Chapman & Smith, Chicago, Ill.
China—China Baking Powder Company, Chicago, Ill.
Chicago XXX—H. C. Fisher & Co., Chicago, Ill.
Cook's Choice—D. W. Payne & Co., Minneapolis, Minn.
Crystal—Phœnix Baking Powder Company.
China Tea House—China Tea House, St. Paul, Minn.
Cottage—Arctic Cracker and Spice Company, Minneapolis, Minn.
Challenge—Sherman Bros., Chicago, Ill.
Columbia—Columbia Baking Powder Company, St. Paul, Minn.
Capital—Ohio Coffee and Spice Company, Columbus, O.
Capitol—Dunham & Johnson, Minneapolis, Minn.
Crown—J. P. Dieter, Chillicothe, O.
Coin—B. J. Musser & Co., Chicago, Ill.
Daisy—Yanz, Griggs & Howes, St. Paul, Minn.
Diamond—Davis & Preston, Minneapolis, Minn.
Diamond Crystal—Pioneer Tea and Coffee Company, St. Paul, Minn.
Drady's—Drady, Moorhead, Minn.
Domestic—Domestic Baking Powder Company, Cincinnati, Ohio.
Dr. Pierce's—Phœnix Baking Powder Company, Chicago, Ill.
Dew Drop—Arctic Cracker and Spice Company, Minneapolis, Minn.
Every Day—Bengal Coffee and Spice Company, Chicago, Ill.
Eddy's Baking Powder—Eddy & Eddy, St. Louis, Mo.
Eddy's Reliable—Eddy & Eddy, St. Louis, Mo.
Excelsior—
Electric Light—Joe. N. Longenbach, Dorchester, Iowa.
Electric Light—M. A. Sherk, Mankato, Minn.
Eastlake—Minnesota Coffee and Spice Mills, St. Paul, Minn.
Empire—Craig Baking Powder Company, Cleveland, O.
Echo—Spencer & Co., Chicago, Ill.
Echo—Sherman Bros., Chicago, Ill.
Empire New Process—Empire Coffee and Spice Mills, Minneapolis, Minn.
Empire—McCarthy, Cornelius & Co., St. Paul, Minn.
Farina—New Process Baking Powder Company, New York.
Front Rank—F. J. Holmquist & Co., Minneapolis, Minn.
Fidelity—Sherman Bros., Chicago, Ill.
Fidelity Yeast—Sherman Bros., Chicago, Ill.
Forest City—Vonwie Bros., Cleveland, O.
Gates Baking Powder—Gates Baking Powder Company, Indianapolis, Ind.
Gates No. 1—A. B. Gates & Co., Indianapolis, Ind.
Gem—
Golden Rule—Bell, Conrad & Co., Chicago, Ill.
Golden Rod—Boston Baking Powder Company, Chicago, Ill.
Gold Medal—Phœnix Baking Powder Company, Chicago, Ill.
Gold Dragon—Dean Bros. & Lincoln, Chicago, Ill.
Good as Gold—Ransom Bros., Albert Lea, Minn.
Goblet—Creelman & Avery, St. Paul, Minn.
Globe—Langham & Payne, Minneapolis, Minn.
Government—Columbia Baking Powder Company, St. Paul, Minn.
Government—Government Baking Powder Company, St. Paul, Minn.
Harries—Harries Baking Powder Company, Minneapolis, Minn.
Hard Pan—Chase & Pratt, Minneapolis, Minn.
Hatchet—W. M. Hoyt, Chicago, Ill.
Henkel's—Henkel Bros., Patterson, N. J.
Household Pride—
Hotel—J. C. Grant Baking Powder Company, Chicago, Ill.
High Test—McCarthy & Camp, Minneapolis, Minn.
Home—Home Baking Powder Company, St. Paul, Minn.
Imperial—Merriam, Collins & Co., Chicago, Ill.
Ivory—Coronet Coffee and Spice Mills, Chillicothe, O,
Joe. W. Langen Baking Powder—Joe. W. Langen, Dorchester, Iowa.
Kenton—Potter, Parlin & Co., Cincinnati, O.
K. C.—F. F. Jaques, Kansas City, Mo.
Liberty—J. F. Wolf & Co., Pittsburgh, Pa.
Lion—David Garrick & Co., Philadelphia, Pa.
Loyal— ——— ——— New York and Chicago.
Lightening—Dayton Spice Mills, Dayton, O.
Lone Star—Lone Star Manufacturing Company, Minneapolis, Minn.
Mammoth—Atwood & Steele, Chicago, Ill.
Magnolia—Magnolia B. P. Company, Chicago and St. Louis.
Mascot—C. F. Ware Coffee Company, Dayton, O.
Mrs. Baker's—George R. Newell & Co., Minneapolis, Minn.
Mason's Pure Cream of Tartar—F. H. Mason & Co., Quincy, Ill.
Monarch Mills Yeast Powder—Reid, Murdock & Co., Chicago, Ill.
Morning Glory—St. Paul Baking Powder Company, St. Paul, Minn.
Milk Baking Powder—W. F. McLaughlin, Chicago, Ill.
Morning Lily—
Moss Rose—F. H. Mason & Co., Quincy, Ill.
New Chicago—McNeil & Higgins Company, Chicago, Ill.
New Era—John Davis & Co., Detroit, Mich.
New England—Creelman & McCormack, St. Paul, Minn.
New Home—Mer. Co-Operative Chemical and Spice Company, Pipestone, Minn.
N. Y. Tea Company Baking Powder—N. Y. Tea Company, New York.
North Star—North Star Baking Powder Company, St. Paul, Minn.
None Such—George C. Hanford, Syracuse, N. Y.
Our Best—John A Tolman & Co., Chicago, Ill.
Our Favorite—Our Favorite Baking Powder Company, New York.
Our Leader—Phœnix Baking Powder Company, Chicago, Ill.
One Pound—Globe Baking Powder Company, La Crosse, Wis.
O. K.—Rosewater Bros., Cleveland, O.
Pacific Tea Company—Kent & Brady.
Patapsco—Patapsco Baking Powder Company.
Palace— ——— ——— St. Paul, Minn.
Perfection—Smith & Chandler, Milwaukee, Wis.
Phœnix—Phœnix Baking Powder Company, Chicago, Ill.
Premium—Premium Baking Powder Company, New York.
Porter Bros.' Pure—Rosewater Bros., Cleveland, O.
Postal—Spencer Bluing Paddle Company, Chicago, Ill.
Policy—H. C. Fisher, Chicago, Ill.
Putnam's Superior—Wells, Putnam & Co.
Puritan—Puritan Baking Powder Company, Cleveland, Ohio.
Puhl's Prize Powder—Puhl & Webb, Chicago, Ill.
Purity—Home Baking Powder Company, St. Paul. Minn.
Pure Baking Powder—Burton Baking Powder Company, Fairport, N. Y.
Red Cross—Ricker, Crombie & McLean, Milwaukee, Wis.
Rising Sun—Phœnix Chemical Works, Chicago, Ill.
Rival—Twohy Bros. Mercantile Company, West Superior, Wis.
Riverside Mills—Creelman, Avery & Co., St. Paul, Minn.
Riverside—Berkey, Talmage & Co., St Paul, Minn.
Safe and Reliable—Granger & Co., Buffalo, N. Y.
Standard—Globe Coffee and Spice Mills, Minneapolis, Minn.
State—Stuart & Snyder, Cleveland, Ohio.
Sovereign—Sovereign Baking Powder Company, New York.
Solar—Sherman Bros., Chicago, Ill.
St. Paul—St. Paul Grocery Company, St. Paul, Minn.
Silver Star—E. Canby, Dayton, Ohio.
Silver Spoon—Arctic Cracker and Spice Company, Minneapolis, Minn
Susag's Best—Susag Bros., Minneapolis, Minn.
Snow Ball—Bengal Coffee and Spice Company.
Snow Drift—Woolson Spice Company, Toledo, Ohio.
Silver Standard—Deane Brothers & Lincoln, Chicago, Ill.
Silver King—Shaw & Thomas, New York.
Sweet Home—C. H. Blichfeldt, Minneapolis, Minn.
Superior—O. Burke, St. Paul, Minn.
Spot Cash—J. C. Grant, Chicago, Ill.
Sun—Rosewater Bros., Cleveland, Ohio.
Swea— " " " "
Sweet Biscuit—Puhl & Webb, Chicago, Ill.
Schmidt's Favorite—Rosewater Bros., Cleveland, Ohio.
The Model—Knoutz & Co., Fairmont, Minn.
Town Talk—
Triumph—Harrison, Farrington & Co., Minneapolis, Minn.
The Legal—Rosewater Bros., Cleveland, Ohio.
Twin City—Manufactured for J. K. Ferguson, Minneapolis, Minn.
Union Star—Steele, Wedeles & Co., Chicago, Ill.
Underwood's—Thos. Wood & Co., Boston, Mass.
Unrivalled—Sprague, Warner & Co., Chicago, Ill.
Vienna—Consolidated Coffee Company, Omaha, Neb.
Victor—Reid, Murdoch & Fisher, Chicago, Ill.
Waseca—C. & C. Kirkpatrick, Waseca, Minn.
West—Jas. McIntosh & Co., Minneapolis, Minn.
Western Pearl—Western Pearl Company, Chicago, Ill.
Western Prince— " " " " "
West Hotel—McCarthy & Camp, Minneapolis, Minn.
Western—Jas. McIntosh & Co., Minneapolis, Minn.
White Rose—Geo. S. Freemy, Wheeling, W. Va.
White Rose—Chase & Pratt, Minneapolis, Minn.
White Lily—White Lily Baking Powder Company, St. Paul, Minn.
White Cross—J. Schneider & Co., Cleveland, Ohio.
Wisconsin—Ricker, Crombie & McLean, Milwaukee, Wis.
Windsor—A. C. Whitman, Jackson, Minn.
Yankee Baking Powder—Yankee Baking Powder Company, New York and Chicago.
Yeast Powder—Chapman, Smith & Co., Milwaukee, Wis.
Zipp's Grape—Zipp & Schromdorser, Cleveland, Ohio.

W. S. EBERMAN,
C. W. DREW,
Dep't Chemists.

MEDICAL.

HISTORICAL AND OTHER FACTS REGARDING VACCINATION.

BY IRVING A. WATSON, M. D.

[From the New Hampshire State Board of Health Report.]

[Concluded.]

"A law suit of the most abominable sort is now going on at Berlin, between a banker of that town and Dr. Wolf. That physician was requested by the banker to vaccinate his children. He complied with the request; but instead of taking vaccine virus he took variolous [smallpox] matter of the most confluent kind. Those two children died during the inoculation. The parents, astonished to see such symptoms produced by the *vaccination*, made the strictest inquiry, and traced the evil to its origin. A regular charge was brought against that monster, but I do not yet know the result of it."

The chief danger was then considered to be, and is no less so now, from using virus that was too old, or that taken at an improper stage in the development of the vesicle. The result of the use of such virus is not the introduction of disease into the system, but the creation of a local sore of more or less severity without giving the person any protection. So important was the operation regarded by the physicians in the earlier days of vaccination, that they deemed it necessary to see the patient in a few days afterward to determine whether the result was protective or not. There are numerous persons on whom the operation of vaccination, performed with a point or lancet perfectly clean and free from vaccine virus, would cause a sore not less severe than that which often results from true vaccination. Hence, a sore is not unfrequently produced which the subject regards as a vaccination vesicle, when infection from the vaccine matter has not taken place.

Such a person in after years having smallpox, the anti-vaccinationists flaunt the fact as an instance in which vaccination was not a protection. The assertion which has been made, that by vaccination "humors" are introduced into the system, is probably not true in one case, so stated, in ten thousand. It is true that not unfrequently an eruption, or perhaps pimples, appear for a time after vaccination; but who has not seen the same condition produced in some persons by articles of food like mince pie, strawberries, honey, lobsters, etc., or by the taking of certain medicines? The whole solution of the question is in the fact that some systemic disturbance follows, that manifests itself upon the skin or elsewhere; some latent so called scrofulous condition may for a time be brought into activity, or a metastasis of a hitherto unrecognized affection may have taken place, relieving some internal organ by placing its burden for a time upon the skin. This is all there is to the so-called cases of "disease introduced by vaccination" that it has been the writer's fortune to see. On the other hand, the health is not unfrequently improved by vaccination. Eruptions, classed as scrofulous, upon the face and body, have been known to disappear as a result of vaccination, which failed to be removed by medical treatment or local application.

The following may be stated as incontrovertible propositions:

1. That all children should be vaccinated before they are one year old.
2. That vaccination with *fresh* bovine virus, or from the arm of a healthy person, *taken at the proper time and in a proper manner*, can communicate nothing but the vaccine disease.
3. That a person who has had the vaccine disease is protected from smallpox for a certain number of years afterward.
4. That owing to an unexplained idiosyncrasy the protection afforded by vaccination is, in some persons, exhausted in a few years; hence, re-vaccination should be occasionally resorted to, especially if smallpox is prevailing.
5. That no reliance can be placed upon the vaccine scar as to how long the protection of vaccination exists.
6. That in a well-vaccinated community smallpox can never become epidemic.
7. That it is the duty of every individual to avail himself of the protection which vaccination affords.

Dr. J. M. Toner puts this idea in the following forcible language: "Parents and guardians have no more right to withhold or neglect to provide vaccination for the children under their protection, than they have to jeopard the lives of these helpless infants by not furnishing them with food or clothing. It is criminal to neglect either, as death may be the consequence; but the failure to provide protection against smallpox seems to be more maliciously wicked than to neglect either food or clothing, as the former may not only cause the death of the child, but may be the means of spreading disease and death among many others; while the evil which arises from the latter, ceases with the death of the victim."

A thoroughly vaccinated person resists all exposure to the infection of smallpox—does not contract even varioloid. Many do not understand this, but regard vaccination as only mitigating the severity of smallpox by changing its form to varioloid. Were the latter true we should have epidemics of varioloid as extensive as the epidemics of smallpox in former times. There are, however, occasional individual exceptions to this rule, but they are exceedingly few.

"Dr. Marson, having the greatest experience perhaps of all writers upon this subject, says of the test of vaccination in preventing smallpox: 'For thirty years we have re-vaccinated all the nurses and servants who had not had smallpox, on their coming to live at the smallpox hospital, and not one of them has contracted smallpox during their stay here.' "

But it is unnecessary to multiply the illustrations. Those who desire to study the subject can find trusty records and statistics to prove the marvelous protective power of vaccination. In vaccination and revaccination all may be safely fortified against one of the deadliest foes to mankind.

MEDICATED SKIN VARNISHES.

Skin varnish is the term applied by Unna to preparations used in dermatological practice for forming a thin covering on the skin. The principal bases for these preparations are the following:

Bassorin Varnish.—The pure bassorin basis is obtained, according to Elliot, by filtering tragacanth mucilage (15:100) in a filter heated by steam, evaporating and mixing with glycerin. A similar basis may be prepared by stirring five parts of powdered salep with 95 parts cold water until a smooth mucilage is obtained, then heating for half an hour on the steam bath. The salep basis contains less bassorin but more starch.

Casein Varnish.—The casein obtained by coagulating skim milk with rennet at a temperature of 35 to 40 deg. is washed and dried until it forms a yellowish white sandy powder soluble in alkaline solutions. In preparing the casein varnish this casein is dissolved by means of borax. For 20 parts casein, 2·5 parts of borax and 77·5 parts water furnish a rapidly drying uniform covering material. The alkaline characters of the borax are marked by the casein. Admixtures of heavy pulverulent substances readily settle out of this basis and it is requisite to distribute them by shaking. A varnish of casein and glycerin is prepared by dissolving the casein in 3 or 3·5 parts of ammonia, adding a quantity of glycerin equal in weight to the casein and heating to drive off the ammonia. The resulting mass mixed with twice its weight of boiling water gives an excellent permanent emulsion.

Amber Varnish is made by dissolving a mixture of amber and turpentine in alcohol. It must not be used as a vehicle for the application of zinc oxide.

Castor Oil and Shellac Varnish.—With 1 part shellac, one-fifth part castor oil and 3 parts alcohol, a varnish is obtained which forms a good flexible covering easily removed by alcohol.

Canada Balsam and Collodion Varnish.—Sixteen parts collodion with 1 part Canada balsam gives a material suitable for the application of pyrogallol, and it can be easily removed by alcohol.

Castor Oil and Collodion Varnish.—Eight parts collodion and one part castor oil.

Lead Ricinoleate Varnish.—One part lead oxide heated with 1·5 part castor oil to saponification and mixed with 2 parts absolute alcohol gives a good skin varnish.

Chrysarobin Amber Varnish.—One part chrysarobin and 20 parts of amber dissolved in turpentine.

Pyrogallol Shellac Varnish.—One part pyrogallol, 1 part castor oil, 5 parts shellac and 15 parts absolute alcohol.

Salicylic Acid, Canada Balsam and Collodion Varnish.—One part Canada balsam, 10 parts collodion and 3 parts salicylic acid.

Zinc Oxide, Castor Oil and Collodion Varnish.—Two parts zinc oxide, 2 parts castor oil and 16 parts collodion.

Zinc and Lead Ricinoleate Varnish.—Five parts lead ricinoleate, 8 parts zinc oxide, 8 parts absolute alcohol, and lastly 1 part each of collodion and ether.

Ichthyol Borax Casein Varnish.—Five parts sodium ichthyolate and 15 parts borax casein varnish.

Sulphur Glycerin Casein Varnish.—Five parts sulphur and 15 parts glycerin and casein varnish.

Zinc Oxide Salepbassorin Varnish.—Two parts zinc oxide and 18 parts salepbassorin varnish.

Zinc Ichythol Tragacanth Bassorin Varnish.—One part sodium ichthyolate, 2 parts zinc oxide, and 17 parts tragacanth bassorin varnish.—*Therapeut. Monatsch.*

FOOD BEFORE SLEEP.

Many persons, though not actually sick, keep below par in strength and general tone, and I am of the opinion that fasting during the long interval between supper and breakfast, and especially the complete emptiness of the stomach during sleep, adds greatly to the amount of emaciation, sleeplessness and general weakness we so often meet.

Physiology teaches that in the body there is a perpetual disintegration of tissue, sleeping or waking; it is therefore logical to believe that the supply of nourisment should be somewhat continuous, especially in those who are below par, if we would counteract their emaciation and lowered degree of vitality; and as bodily exercise is suspended during sleep, with wear and tear correspondingly diminished, while digestion, assimilation, and nutritive activity continue as usual, the food furnished during this period adds more than is destroyed, and increased weight and improved general vigor is the result.

All beings except man are governed by natural instinct, and every being with a stomach, except man, eats before sleep; and even the human infant, guided by the same instinct, sucks frequently day and night, and if its stomach is empty for any prolonged period it cries long and loud.

Digestion requires no interval of rest, and if the amount of food during the twenty-four hours is, in quantity and quality, not beyond the physiological limit, it makes no hurtful difference to the stomach how few or how short are the intervals between eating; but it does make a vast difference in the weak and emaciated one's welfare to have a modicum of food in the stomach during the time of sleep, that, instead of being consumed by bodily action, it may during the interval improve the lowered system. I am fully satisfied that were the weakly, the emaciated, and the sleepless to nightly take a light lunch or meal of simple, nutritious food before going to bed for a prolonged period, nine in ten of them would be thereby lifted into a better standard of health.

In my specialty (nose and throat) I encounter cases that, in addition to local and constitutional treatment, need an increase of nutritious food; and I find that by directing a bowl of bread and milk, or a mug of beer and a few biscuits, or a saucer of oatmeal and cream before going to bed, for a few months, a surprising increase in weight, strength and general tone results. On the contrary, persons who are too stout or plethoric should follow an opposite course.—*Dr. W. T. Cathell, Brit. Med. Jour.*

HYGIENIC.

A Fallacy of Ventilation.—In many a shop or office window a shrewd inventor has placed a wheel that is usually seen to be rapidly revolving. The happy inmates of the room fancy that the spinning of that wheel produces a current of air that keeps the room ventilated. They do not stop to think that the air-current turns the wheel, and that therefore the wheel cannot create the current. No, that activity of the wheel is a sign to them that there is an activity of the air. True, there would be a still greater activity of the air if the wheel were removed entirely, but then they would have no evidence of it. The rotating wheel serves merely to prevent the free egress or ingress of air.—*Sunday School Times.*

Soaps and Cosmetics are coming forward as subjects for sanitary regulation by law. The Vienna Congress of Analytical Chemists discussed the question with reference to public baths and publicly advertised toilet articles. Whether any public regulation be practicable or not, there should be, as with baking powder, public government tests to enable the people to choose between the evil and the good.

Should Old and Young Sleep Together.—The question is often asked us: "Do you think it objectionable for old and young persons to sleep together?" We answer most emphatically, yes. It is certainly very damaging for young persons to sleep with old persons, but it is also damaging for a young person to sleep with one of equal age. It is indeed questionable whether persons of any age can habitually sleep together without damage. The injury does not arise from the absorption of vitality from the young by the old, or from a person of one temperament by a person of a different temperament, but it grows out of the fact that beneath the bed clothing there is constantly thrown off by the skin quantities of poisonous matters, which accumulate, creating underneath the more or less impermeable bed covers a poisoned atmosphere. In case two persons occupy the same bed, the amount of this poison is naturally doubled, and as the body reabsorbs more or less of the poisonous matter, the density of the poison in the under-the-bed-covers atmosphere is necessarily increased. The extent of the injury inflicted would naturally be palpably greater in the case of a young child, on account of the greater susceptibility of the very young. But the same mischievous tendency must exist in the case of persons of any age to a greater or less extent. A bed for each member of the family is certainly one of the arrangements which can be commended from a hygienic standpoint.—*Good Health.*

Bee Stings.—When applied immediately after the injury, aqua ammonia, it is claimed, is a specific for bee stings. It should be applied thoroughly and will reduce or prevent swelling.

Remedy for Poisoning by Ivy or Rhus Toxicodendron.—Fl. Ext. belladonna, 2 drachms; glycerine, 2 drachms. Sig.: Apply three times a day.

CHLORINATED LIME AS A HOUSEHOLD DISINFECTANT.

BY JOHN J. BERRY, M. D., MEMBER OF THE STATE BOARD OF HEALTH, PORTSMOUTH, N. H.

[Concluded.]

In many, if not all the infectious diseases, the waste products eliminated by the lungs, kidneys, bowels, skin, and mucous membranes possess poisonous properties which contaminate everything with which they come in contact and may, either immediately or at some future time, reproduce themselves. It is important therefore, that they should be at once deprived of these elements of danger. Nothing will accomplish this result better than chlorinated lime, which for rapidity of action so much exceeds all other agents. The dejections of patients suffering from infectious diseases, especially typhoid fever, should be treated for an hour with the standard solution, from two to three quarts being used for each evacuation. As its active principle, the hypochlorite, is quickly decomposed in the presence of all organic matter, it should always be present in excess of the amount of material to be disinfected. As regards large amounts of excreta, as for example, the contents of vaults and cesspools, there is no method by which they can be thoroughly sterilized. The belief that the poisonous elements of such collections may be destroyed by any powerful agent applied to their surfaces, is both a false and dangerous one. Certain ones have greater powers of penetration than others, but no substance can exercise such action unless brought into direct contact with the objectionable material. When this can be accomplished, about one pound of lime powder will properly disinfect about thirty pounds of solids. This may be applied in solution or sprinkled thickly over the surface to be purified. The secretions of the nose and throat, which in diphtheria are extremely poisonous, should be received into vessels containing the freshly made solution, or upon cloths or handkerchiefs which should be promptly destroyed. A gargle of the same, diluted with four or five parts water may also be used frequently as a precautionary measure.

The skin, which in scarlet fever particularly, and in many other affections to a less degree, is a frequent source of infection, should receive no less attention. A lotion of the same strength, to which Listerine, cologne, Florida water or other toilet preparation has been added, forms an effective as well as agreeable application which may be used freely in all febrile conditions without injury to the skin. When desquamation of the cuticle occurs, as in scarlet fever, the use of the above should be supplemented by the inunction of oil.

The latest and best appliances for sewage disposal will at times prove sources of danger unless subjected to careful and intelligent supervision. However thorough the removal of such material may be, the traps and pipes become after a time, foul and offensive and perhaps clogged with organic matter. The first step in the process of cleansing is the preparation of a hot saturated solution of washing soda or, better still, caustic soda, which should be poured down the pipes in sufficient quantity to about fill the traps. The alkali, if allowed to remain for several hours, unites with the greasy deposit and forms a soap which is readily washed out by the free use of hot water. The subsequent employment of the standard solution in sufficient quantities renders the disinfection complete.

Sewers and drains which are constructed of wood and are otherwise faulty, cannot be thoroughly purified, yet their frequent flushing and the use of the solution in generous quantities affords the best plan we know of for keeping them in the best condition possible. The facility with which this agent decomposes the sulphuretted hydrogen compounds and other gaseous bodies, renders it equally valuable as a deodorizer in this as well as all other cases where several indications are to be met.

Neither this nor any other agent can be relied upon solely for the disinfection of the sick room. Fresh air and cleanliness rank highest as purifying agents; all others are merely adjuvants. We can accomplish far more by diluting and changing the atmosphere of an infected room, than by trying to destroy its germs by some disinfecting substance; in fact the latter alternative must necessarily prove futile, for the air of any enclosed space impregnated with such an agent in sufficient quantities to prove germicidal, would become at once uninhabitable. Yet a small quantity of the solution exposed to the air by means of three or four towels dipped in the same, acts as a prompt and effective deodorant, if nothing more.

While then no apartment in constant use can be completely disinfected, much can be done in this direction by a frequent washing of the floor paint, woodwork, and furniture with a diluted solution of the lime, one part to three being a proper proportion. This, together with the other methods above advocated, will maintain any living room in about as perfect condition as it is possible to secure.

While there are other agents, such as carbolic acid, corrosive sublimate and permanganate of potash, which in certain cases are superior to chlorinated lime, we believe there are none which for general utility, can be compared with it.

Chief among its virtues may be noted the following:

1. Moderate cost.
2. Facility of application.
3. Rapid action.
4. Decided germicidal powers.
5. Marked deodorant properties.
6. Non-poisonous qualities.
7. General adaptability.

HOUSEHOLD.

CARE OF THE HANDS.

A FEW PLAIN DIRECTIONS HOW TO DO IT.

To have perfect hands, the familiar adjuration of careful and systematic cleanliness cannot be omitted; for though no lady needs a suggestion in this direction, it may be a necessity to utter a word in behalf of some children—or even of some of "the lords of creation." Says an eminent clergyman: "I am disposed to think that a Christian man, whatever his occupation, will in some way contrive to keep his hands clean, or at least to cleanse them daily. I confess that I suspect the man who comes to me with soiled hands, whatever his errand." Many a young man wonders why he doesn't get into certain circles where his intelligence and good habits would seem to give him entrance, when the whole reason is to be found in the region of personal care and appearance. Many a young woman has reached the settled conviction that she cannot do housework, as it would ruin her hands; but the fact remains that multitudes of women are doing just that kind of labor, working hard every day, and yet have beautiful hands. How is it done? Simply by the exercise of care; by taking pains to avoid the soiling, staining, abrading or burning of the fingers, hands or arms. Where, from the nature of work to be done or the careless habits of the worker, they seem a necessity, gloves for nearly every variety of housework are to be obtained; there are chamois gloves for sweeping, dusting, or handling furniture, rubber gloves for wet work, and gloves for cooking; but if these are not for any reason available, "an old pair," especially if a size or two too large, will be found valuable for a thousand uses.

It may seem pedantic to even offer a suggestion regarding hand-washing, since, probably, few of our readers have reached the philosophic conclusions of a certain youth, who had recently taken up the study of a new branch of science, which he proceeded to apply thus: "The application of cold water produces a mental shock, accompanied by a sense of dread. Nature, therefore, could not have intended that the human frame should be bathed in cold water. The application of warm water, if not actually agreeable, is certainly less repulsive; but Nature did not provide warm water, except in a few abnormal instances, and it could not, *ergo*, have been intended that water of any sort should be used as an external application."

As a rule, neither very hot nor very cold water should be used, even for washing the hands, though the peculiarities of the individual temperament should be consulted, since for some organizations peculiar treatment may be required. Generally speaking, a violent contrast between the temperature of the person and the bathing water is not advisable. If the system is heated, warm water only can be applied safely, which may be followed with that which is cooler; and on the contrary, where a person is seriously chilled through exposure to severe weather, cold water should be the first application The analogy from these established principles would indicate for the normal condition of the individual the use of moderately warm or tepid water, and experience shows this generally to be best and always to be entirely safe.

Almond paste is one of the most approved preparations for keeping the hands smooth, white and delicate. It can be obtained at most drug stores or may easily be made. Take two ounces each of bitter and sweet almonds, pound to a paste, and add half an ounce of oil of almonds, half an ounce of finely cut Castile soap, and a few drops of oil of bergamot. It is applied at night, a loose pair of kid gloves being drawn on the hands to keep it in place. A similar, and perhaps even more efficient preparation is made by dissolving an ounce of white wax in a sufficient quantity of almond oil, the operation being best done by immersing the vessel in a kettle of boiling water. This mixture has to be applied while warm, and a pair of large gloves should immediately be drawn on to keep the wax in place, as it soon cools and is disposed to peel off. Cold cream is also an almond preparation, and is made by mixing with four ounces of oil of almonds, half an ounce each of spermaceti and white wax. Apply a moderate degree of heat carefully till the whole has liquefied, then add two ounces of orange or rose water.

Oatmeal is a favorite application, neat in use and very effectual. A simple way to use it is to keep a box filled with the fine meal conveniently near the towel bowl, and after wiping the hands dry and rubbing them briskly, to dust them thoroughly with the meal. Gloves may be worn, if loose, without special discomfort, but they are scarcely necessary.

Glycerine is a standard article for this use, and there are few better for most people. The hands should be thoroughly washed and dried, with this as with any other preparation, before it is used; a moderate quantity—somewhat more than will be readily absorbed—is then applied and vigorously rubbed in, a pair of gloves, generally, being needed to prevent the soiling of bedclothes or garments.

Where it is a necessity to use hard water, a few drops of ammonia may be added. This not only softens the water, but has a very good effect on the skin. The use of a small quantity of borax has the same effect. Both of these articles are practically harmless for any such use, and they are very cheap and easy to be had. A convenient way to use the borax is to have a bottle filled with hot water, in which a saturate solution should be made. This will be indicated by small crystals lying on the bottom of the bottle. Add a trifle more of water, shake up thoroughly, and when wanted, pour a few drops into the bathing water.

A bottle of vaseline should always be kept at hand, for it is not only a desirable cutaneous application in many cases of itching skin diseases, and for intractable sores and the like, but it may be used to advantage in the few cases where the application of glycerine produces unsatisfactory results.

Lemon juice has valuable qualities, both for whitening and softening the skin and for the removal of tan, stains, and discolorations. There is no difficulty about its application or the subsequent treatment. Several of the above named articles may be mixed or combined with the best results. A favorite recipe calls for two parts of lemon juice and one each of glycerine and almond oil. Honey balsam is another favorite, and worthy of confidence. It is made of eight tablespoonsful of strained honey, and one-fourth the amount of glycerine warmed together till thoroughly mingled; to this, when cold, is to be added two tablespoonsful of rectified spirit, in which three drachms of citric acid have been dissolved. The mixture is scented to please, and is then bottled and corked at once.

This list would not be complete without including an old and favorite American preparation. Into a wineglass each of German cologne and lemon juice, two cakes of brown Windsor soap were finely shaven, the mixture being allowed to stand for a day or two till it became a homogeneous mass which could again be moulded into a cake, and proved very satisfactory in removing stains and whitening the hands.

Before the subject of stains and emollients is dismissed, a word of warning should be spoken against the indiscriminate recommending of deadly poisons for the most common use about the person. Whether the people who make these recommendations are simply ignorant or utterly careless of the danger they invite makes no difference; oil of vitriol, oxalic acid, and cyanide of potassium are recommended by these writers, as carelessly as lemon juice or glycerine, as desirable agents for removing stains or discolorations from the hands. They are efficient in this direction, to be sure, but each of the three is a dangerous poison, and in the hands of any person ignorant of its qualities or careless regarding them, liable to cost even life itself. Cyanide of potassium is an especially deadly poison, and should not be used under any circumstances.

Chapped hands are an especial source of annoyance to many persons during cold weather. Homely as the remedy may seem, there is probably nothing better or more effective than a simple rubbing with pure mutton tallow. One part of glycerine to two parts of soft water, with a few drops of rose water added, will be found very useful; so will vaseline, or either of the following recipes:

One drachm of borax, six ounces of rose water, and one ounce of glycerine.

One ounce of glycerine and one ounce of alcohol mixed together, then add eight ounces of rose water; bottle for use.

Liquor ammoniac, tincture of opium, spirits of turpentine, and olive oil, equal parts of each. After washing and drying the hands in the morning, at midday, and in the evening, pour a teaspoonful of the liniment in one hand, and rub the hands and fingers together as if washing them. Repeat the process with the other hand. If the sore parts smart too much, the liniment should have a little sweet oil added to it.

GINGERBREAD AND SNAPS.

Hard gingerbread, soft gingerbread, drop cakes and gingersnaps can be made with perfect success without eggs Gingersnaps may be considered costly in time, as it is a labor requiring patience to roll them out until they are of paper thinness, as they should be, and then to cut and bake with due care. But the actual expense is very small, and the jar of crisp gingersnaps is something to be surveyed with no small satisfaction. Almost everybody likes them, and they will keep indefinitely if the supply is large enough.

Gingersnaps.—One cupful of sugar, one cupful of treacle, one cupful of butter (lard will answer, mixed lard and suet from the frying-kettle is better), one teaspoonful of ginger, one teaspoonful of soda dissolved in two teaspoonfuls of hot water. Make a stiff dough with flour, and knead thoroughly. Roll as thin as possible, cut in small rounds, and bake in a moderate oven.

Hard Gingerbread.—Add another cupful of treacle and a cupful of sour cream to the same mixture, make stiff enough to knead it well, and roll into cards (thin flat loaves), and you have an excellent hard gingerbread. Some prefer these cards glazed with a little brown sugar dissolved in milk.

Soft Gingerbread.—For a very nice, melting, soft gingerbread, made without eggs, butter, or milk, use half a cupful of fat from the frying-kettle, a large cupful of dark treacle, a teaspoonful of ginger, one of soda, half a cupful of hot water, and flour enough to make a stiff batter. The only difficulty is in getting the batter stiff enough, yet not too stiff, and in good baking. The oven must be hot but not so furiously hot as to scorch. All cakes made without eggs require to be somewhat stiffer than when eggs are used. It is difficult to give exact quantity, as both treacle and flour vary somewhat in this respect. Good ginger cookies are made after the same receipt. Of course they must be made stiff enough to roll out without sticking.

For drop cakes substitute cloves and cinnamon for the ginger, and make soft enough to drop from the spoon and hold shape without running together in the pan. Bake in a quick oven Three or four raisins or currants stuck in the top of each will please the children, for whom these are all good, wholesome cakes.

SHOPPING BY SYSTEM.

"But," says some woman, "we must 'shop'; we must get the things we want." Certainly. Bless your heart, shop all you want, but why not apply some kind of a system to the idea? Don't make a day of it. Give an occasional morning to the pleasure (?), and break it up in pieces. "Easy talking," says some one, "but we cannot always leave our homes when we want to, as you men can." My dear woman, God gives you just exactly the same amount of time as he does to men, and he hasn't given you a particle more to do within that period of time. The trouble is that women are not systematic enough. I played the part of eavesdropper in some of the stores, and was surprised to find how few women really knew just what they wanted. They knew in a general way, but not in a definite sense. Now, when a man goes shopping he knows precisely what he wants, asks for it, gets it, pays for it and goes away. Women's purchases are undoubtedly different, and such a simple system cannot, perhaps, be followed by them. But that women could simplify their shopping expeditions, numbers of their own sex have confessed to me within the last few days.—*Ladies' Home Journal.*

A COMMON DANGER.

Malarial fevers are reported rife in a town near New York, which has, heretofore, it is claimed, been exceptionally free from such visitations and the citizens—and even the local physicians—are indulging in heated discussions as to the cause thereof. So far as heard from, they have found these probable causes—a stagnant pond, in which accumulated all winter the drainage from a large tract of freshly ploughed and manured ground—an unusual amount of excavations for new buildings and the opening of a new street for which both a deep cut and the filling in of some marshy ground have been necessary—germs of disease in the town's water supply last fall, which have been latent in the systems of residents all winter, and are now producing their inevitable effects. A "malarial wave" which, without specially favoring local conditions, is alleged to be rolling over that district, just as a similar one, a few years ago rolled down through the west side of Westchester county, across north of the Harlem River and swept the upper portion of Manhattan Island.

Either provocative would be sufficient, and if each contributes a share to the sum total of causative force, the prevalence of the malady is not to be wondered at. But there is hardly a city, town, village or even hamlet in the land, wherein one or the other of those causes is not operative at this season in greater or lesser degree. Unfortunately, popular intelligence in such matters is a plant of slow growth. In a general sort of way it is understood by most persons that contaminated water supply is apt to induce typhoid fever, but in point of fact there are ten cases of distressing, demoralizing, obstinate and dangerous so-called "malarial" fevers, resultant from this cause, where one of typhoid is induced. The poison of organic matter may be present in sufficient quantity to cause typhoid in water that to the unaided senses is pellucid as crystal and pure as fresh fallen snow on a mountain peak. But microganisms and the germs of bacterial growths inimical to human life and certainly productive of the much more numerous class of disorders broadly included under the name of "malarial" are commoner, even in water carefully protected from the pollution of organic matter. In the human body many of these find a congenial field for their development and multiplication, though their manifestation in effects may be, and generally is, treacherously slow. The seeds of malarial disease may be planted in the system months before they give any evidence of their presence, and indeed they are not likely to be sensed by their victim until they have become distributed through the circulatory system and attained such a hold that their dislodgment by ordinary treatment is at least exceedingly difficult and in many cases impossible.

To prevent the development of any form of malarial disease—to dislodge the enemy—the lurking poison from the system, the blood should be kept pure, rich and vigorous. Dr. Koch assures us that "bacteria do not occur in the blood or in the tissues of a healthy living body, either of man or the lower animals." Therefore, as "prevention s better than cure," the sensible course is to preserve the integrity of the vital fluid by the use of Ayer's Sarsaparilla—the most powerful, and, at the same time, the most harmless and economical alterative known to pharmacy and the medical profession. No family should go to the country this season without taking along with them a supply of this medicine.

BUSINESS NOTES.

BEWARE OF OINTMENTS FOR CATARRH THAT CONTAIN MERCURY,

as mercury will surely destroy the sense of smell and completely derange the whole system when entering it through the mucous surfaces. Such articles should never be used except on prescriptions from reputable physicians, as the damage they will do is tenfold to the good you can possibly derive from them. Hall's Catarrh Cure, manufactured by F. J. Cheney & Co., Toledo, O., contains no mercury, and is taken internally, acting directly upon the blood and mucous surfaces of the system. In buying Hall's Catarrh Cure be sure you get the genuine. It is taken internally, and made in Toledo, Ohio, by F. J. Cheney & Co. Testimonials free.

☞ Sold by druggists, price 75c. per bottle.

HORSFORD'S ACID PHOSPHATE.

Ill Effects of Tobacco Relieved by Its Use.

Dr. O. C. Stout, Syracuse, N. Y., says: "I gave it to one patient who was unable to transact the most ordinary business, becaused his brain was 'tired and confused' upon the least mental exertion. Immediate benefit and ultimate recovery followed."

THE LINE OF LAKES.

The above name has been applied to the Wisconsin Central Lines, on account of the large number of lakes and summer resorts tributary to its lines. Among some of the well-known summer resorts are Fox Lake, Ill., Lake Villa, Ill., Waukesha, Mukwonago, Cedar Lake, Neenah, Waupaca, Fifield, Butternut and Ashland, Wis. These lakes abound in numerous species of fish, such as black bass, rock bass, pickerel, pike, perch, muskallonge, while sportsmen will find an abundance of game, such as duck, geese, quail, snipe, etc. In the grandeur of her scenery, the charming beauty of her rustic landscapes and the rare perfection of her summer climate, the State of Wisconsin is acknowledged to be without a peer in the Union. Her fame as a refreshing retreat for the overheated, careworn inhabitants of the great cities during the midsummer months, has extended as far southward as the Gulf of Mexico and eastward to the Atlantic.

Pamphlets giving valuable information can be obtained free upon application to G. R. Fitch, G. E. A., New York, N. Y., or Jas. C. Pond, General Passenger and Ticket Agent, Chicago, Ill.

BUFFALO LITHIA SPRINGS.—HOT SPRINGS.

TWIN REMEDIES IN

GOUT, RHEUMATIC GOUT AND RHEUMATISM.

WHAT THE HOT SPRINGS PHYSICIANS SAY:

Dr. Algernon S. Garnet, Surgeon (retired), U. S. Navy, Resident Physician, Hot Springs, Ark.:

"My experience in the use of BUFFALO LITHIA WATER is limited to the treatment of **Gout, Rheumatism** and that hybrid disease, '**Rheumatic Gout**' (so called), which is in contradistinction to the **Rheumatoid Arthritis of Garrod.**

"I have had *excellent results* from this Water in these affections, *both in my own person and in the treatment of patients for whom I have prescribed it.* Of course, the remedial agent is its contained **Alkalies** and their solvent properties.

"Hence it is a **prophylactic,** *as well as a* **remedy in Nephritic Colic,** *and forming* **Calculi** *when due to a redundancy of* **Lithic Acid.**"

The Late Dr. Wm. F. Carrington, Resident Physician, Hot Springs, Ark., Surgeon (retired), U.S. Navy, Surgeon Confederate States Navy:

"BUFFALO LITHIA WATER, Spring No. 2, has signally demonstrated its remedial power in **Gout, Rheumatic Gout, Rheumatism, Uric Acid, Gravel** and other maladies dependent upon the **Uric Acid Diathesis.**

"*It not only eliminates from the blood the deleterious agent before it crystallizes, but* **dissolves** *it in the form of* **Calculi,** *at least to a size that renders its passage along the ureters and urethra comparatively easy.*"

Dr. T. B. Buchanan, Resident Physician, Hot Springs, Ark.:

"*Send me five cases* BUFFALO LITHIA WATER, Spring No. 2. I have made use of this Water for **Gout** *in my own person and prescribed it for patients similarly suffering, with the most decided beneficial results. I take pleasure in advising* **gouty** *patients to these Springs.*"

Dr. G. W. Lawrence, Resident Physician, Hot Springs, Ark.:

"I prescribe BUFFALO LITHIA WATER with great confidence, in all diseases of **Uric Acid Diathesis.** When traveling, it is my habit to use this Water as a guarantee for getting a pure water."

Dr. L. S. Ordway, Resident Physician, Hot Springs, Ark.:

"I have used BUFFALO LITHIA WATER Spring No. 2, very extensively and successfully in my practice, in cases of *Rheumatism of the Arthritic* form, especially when complicated with weak, inactive *Kidneys, with inclination to Bright's Disease.* I have also found it an efficient remedy in *Albuminuria of pregnancy.*"

DR. JOHN A BLAYDES, Pres. HOT SPRINGS MEDICAL AND SURGICAL INSTITUTE, ARKANSAS. DR. R. O. BLAYDES, Sec'y.

THE STATEMENT OF DR. BLAYDES:

"We have made use of BUFFALO LITHIA WATER with patients of this institution in many obstinate cases of Gout, Rheumatic Gout and Rheumatism, with uniformly excellent results, and in diseases generally of Uric Acid Diathesis regard it as an invaluable remedy. Its action in this class of cases indicates certainly the possession of some extraordinary property."

WATER IN CASES OF ONE DOZEN HALF-GALLON BOTTLES, $5, F. O. B. HERE.

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To Restore Elasticity to Vulcanized India Rubber.—Rubber bands, tubes, etc., that have lost their elasticity and easily snap, may be restored by steeping for a half-hour in dilute water of ammonia (aqua ammoniæ, 1 part; water, 2 parts).

◆

Her Husband was a Gentleman.—Old lady (to chemist)—"I want a box of canine pills!"

Chemist—"What's the matter with the dog?"

Old lady (indignantly)—"I want you to understand, sir, that my husband is a gentleman."

Chemist puts up some quinine pills in profound silence.

◆

Homœopathic.—"Oh, papa dear, I wish you'd come home. I'm really afraid mamma has taken a drop too much"——

"Gracious heavens, child, what do you mean?"

"That new homœopathic medicine, you know. I'm afraid I've given her seven drops instead of six."

◆

ROASTED OATS AND PREPARED FOOD.

Everything in life that is real and good has a twin brother that is false and bad. Imitation, falsification, and adulteration, are three of the evils of civilization. Sometimes the real and false are so similar as almost to defy detection. Nowhere is this better illustrated than in the prepared foods of our time. A prevailing, if not characteristic, tendency of the American people is to economize time and space, and to dispense with much of the labor and trouble normally required in the kitchen in the preparation of foods for human uses. This tendency is not confined to industrial and commercial fields; it has entered domestic and culinary life, and is rapidly working a social revolution. The old-fashioned kitchen fireplace where a household could sit in comfort, is well-nigh extinct. Its modern successor is a small room, on one of whose sides is an elevated range and a narrow sink, and the other a series of shelves, hooks, drawers, and closets. In the latest "flats" and apartments are "combinations" where, through the use of gas or oil for fuel, even greater condensation is effected. These save valuable space and much time. They also lessen labor and deprive the kitchen of many objectionable features. Equally great is the change in foods. The cooking and preparation are being replaced by those which have been treated according to the latest dictates of chemical or mechanical science, and which are almost ready for use. The coarse groats of Scotland and the rough wheaten grits of England required hours of careful cooking before they could be eaten with pleasure. They are now becoming more and more unfamiliar to the cook owing to the substitution of steam-heated oat and wheat meal, and to more valuable improvements, such as *roasted* oats, which as a food product is the best article of its class that ever entered the experimental kitchen of the American Analyst. The difference may well be discerned by the fact that the latter can be served upon the table twenty minutes after the order is given, and while just as nutritious and invigorating as the groats from which they are prepared, is far more palatable and easy of digestion. A similar process enables the housekeeper to supply the family with pea, bean, lentil, panir and barley, flour of analogous origin and properties. The same system has been applied to soups and soup-making. Such progress has been already achieved that the stock-pot is no longer a necessity in any household. Extract of beef, boiling water, any of the flours named, and sliced steam-dried vegetables, enable the cook to keep a larger supply of first-class soups in a small box, ever ready for use, than can be found upon the bills of fare in nine hotels out of ten. In general the new preparations are made with a high regard for chemical and physiologic science. Indigestible or irritating hulls, shells and the like, are removed and thrown away. The interiors of the entire vegetable when it is of the string bean, leek or cabbage, are sliced, and carefully dried in vacuum pans, every precaution being taken against burning on the one side, or fermentation and souring or molding on the other. With all such substances as peas, beans, oats, barley and wheat, the treatment is long continued, and effects the complete cooking of every particle. The vegetable cells are all broken up, the interlacing fibers disassociated, and much of the starch converted into soluble starch, gum and maltose. In all cases none of the all-important albuminoids or phosphates are injured or lost. The highest grade articles in this new industry must be credited to the Roasted Oat Company. Their researches are known to all physiological chemists, and their manufacture to every gourmet and chef. As a healthful and economical food they should be found in the storeroom of every household.

Tied Down
—the woman who doesn't use **Pearline**. She's tied to her work, and tired with it, too. **Pearline** makes another woman of her. It washes and cleans in half the time, with half the work. Nothing can be hurt by it, and every thing is saved with it. **Pearline does away with the Rub, Rub, Rub. Pearline** does more than soap; soap gives you more to do.

Beware Peddlers and some unscrupulous grocers will tell you, "this is as good as" or "the same as Pearline." IT'S FALSE—Pearline is never peddled, if your grocer sends you an imitation, be honest—*send it back.* 280 JAMES PYLE, New York.

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HORSFORD'S
ACID PHOSPHATE.

A most wonderful remedy, of the highest value in mental and nervous exhaustion.

Overworked men and women, the nervous, weak and debilitated, will find in the Acid Phosphate a most agreeable, grateful and harmless stimulant, giving renewed strength and vigor to the entire system.

Dr. Edwin F. Vose, Portland, Me., says:

"I have used it in my own case when suffering from nervous exhaustion, with gratifying results. I have prescribed it for many of the various forms of nervous debility, and it has never failed to do good."

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POST OFFICE DONT'S.

Don't mail any letter until you are sure that it is completely and properly addressed.

Don't place the address so that there will be no room for the post-mark.

Don't fail, in the hurry of business, to write the name of the State you intend and not your own—a very common error.

Don't fail to make certain that your manner of writing the name of an office or State may not cause it to be mistaken for one similar in appearance. It is often better to write the name of the State in full.

Don't fail, if you are in doubt as to the right name of the office for which your letter is intended, to consult the Postal Guide, which any postmaster will be pleased to show you.

Don't fail to give the street and house number of the person for whom mail matter is intended in addressing it to a city or large town.

Don't mail any letter until you are sure that it is properly stamped.

Don't fail to place the stamp in the upper right-hand corner.

Don't write on the envelope "In haste," "Care of postmaster," etc.; it does no good, and tends to confusion in the rapid handling of mail matter.

Don't fail to bear in mind that it is unlawful to enclose matter of a higher class in one that is lower; *e. g.*, merchandise in newspapers

Don't mail any letter unless your address, with a request to return, is upon the face of the envelope; so that in case of non-delivery it will be returned directly to you.

Don't fail to give your correspondents your full address, so that a new postman cannot fail to find you.

Don't fail to notify your postmaster of any change in your address.

Don't trust to the fact that you are an "old resident," "well-known citizen," etc., but have your letter addressed in full.

Don't fail, if you intend to be away from home for any length of time, to inform your postmaster what disposition shall be made of your mail.

Don't delay the delivery of any mail matter that you may take out for another.

Don't fail to sign your letters in full, so that if they reach the Dead Letter Office they may be promptly returned.

Don't, when you fail to receive an expected letter, charge the postal service with its loss, until you have learned from your correspondent all the facts in regard to its mailing, contents, etc.

Don't mail a parcel without previously weighing it to ascertain proper amount of postage.

Don't wrap a parcel in such manner that the wrapper may become separated from the contents.

Don't seal or wrap parcels in such manner that their contents may not be easily examined.

Don't mail parcels to foreign countries without special inquiry concerning the regulations governing foreign-addressed mail matter.

Don't attempt to send merchandise to foreign countries, other than Canada and Mexico, in execution of an order or as a gift, unless the postage is prepaid at five cents per half-ounce.

Don't attempt to send merchandise to foreign countries by "Parcels Post," unless your postmaster be consulted concerning the country addressed and the manner of mailing matter thereto.

Don't fail to put the address of the sender on each parcel before mailing. This to facilitate a return to the sender in the event of non-delivery.

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PURIFY THE BLOOD.
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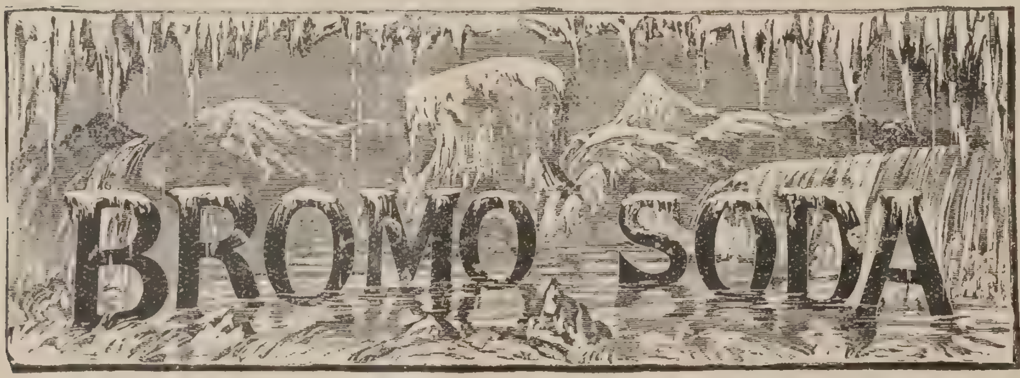

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CONTENTS.

Page
Adulteration 226
Air Ships 229
Antiseptics, New 222
Arsenical Poisoning 223
Athletics, Object Lessons in 226
Bicycles and Throat Troubles 222
Bird Surgery 222
Bone, Boy's Composition on 229
Bone That Is Not Bone 229
Book Reviews 233
Carpet Laying, Hints on 226
Caustic Soda 229
Caviar 226
Concentrated Diet, Improper Use of 223
Correspondence 226
Curtains, to Clean 226
Eating, Rules for 224
Editorial 221
The Summer Outing—Tip for Massachusetts Board of Health—Adulterated Honey—Bogus Cider.
Etiquette of Table 226
Eyesight, Care of 225
Feeding a Delicate Baby 223
Good Rules for Mistress 226
Headache, Sponging out 223
Hints to Sleepers 225
Household 226
Hygienic 225
Ingrowing Nails, Treatment of 222
Japanese Dentistry 223
Kalsomining 226
Lies, Chapter on 230
Lynch Law 230
Medical 222
Medical Dont's 223
Medical Misinformation 222
Mosquitoes, to Keep off 224
Nail and Glass Eating 228
Possibilities of Science 231
Summer Specialties 224
Teasing Children 228
What the Baby Wanted 225

THE SUMMER OUTING.

The Connecticut Board of Health gives the following practical warning which we heartily endorse:

The time has again arrived when the mandates of fashion, if not the need of rest and change, demand that all who can, shall temporarily abandon their present occupations and residences and go somewhere. To many it is a welcome opportunity for relief from overstrained mental or physical exertion. A still larger number obedient to their instincts like other sheep, go with the flock, and for no better reason than the propensity to follow their leaders. Whatever the motive which induces this domestic dislocation and migrating adventure, there is the common object, to preserve and promote health. It becomes therefore a matter of importance that such health-seekers should know that the "change of air" which they have determined upon shall not expose them to far greater perils to health and life than any they incurred at home. The reckless alacrity and charitable cheerfulness with which they pay exorbitantly for poorly-cooked food, diminutive and ill-ventilated lodging rooms and other discomforts and the general indifference to unhygienic conditions, which may prevail, provided they are with the crowd, are all indicative that their gregarious propensities are not tempered with good judgment. Only last summer, among the guests of one so-called health resort in Connecticut over twenty returned to their homes and were at once taken down with typhoid fever. The origin of the infection was subsequently traced to the water supply, which had been with criminal carelessness contaminated by the dejections of a fever patient among the employees of the hotel. The victims of this exposure were residents of many different towns and some of them in other States. Doubtless this is but one of many incidents of like kind. The frequent illness of summer tourists and sojourners in popular resorts after they return home in the autumn, has been long observed. Many striking illustrations might be referred to of dangerous or fatal sickness, following the exposures in unsanitary hotels and summer boarding houses. It is quite time that an intelligent traveling public should demand of those who assume the responsibility of their entertainment, some guarantee that the hostelries in which they are received shall be in such sanitary condition, and the supplies so wholesome, as not to endanger the health of the guests. In the near future two things will come to pass. Summer travelers will become inquisitive about the water supply, sewage disposal, etc., and the keepers of populous resorts will have frequent sanitary inspections of their premises by competent officers, and the sanitary condition thereof officially certified. May such results be hastened.

A TIP FOR THE MASSACHUSETTS BOARD OF HEALTH.

While looking up adulterations the Massachusetts Board of Health, in order to deal out even-handed justice, should examine the many different kinds of fruit juices and unfermented wines for invalids' use so plentifully offered in the market. If that Board considers salicylic acid in minute traces an adulteration within the law, they will find plenty of it in the articles enumerated above. Let us see the results of examining some of these.

ADULTERATED HONEY.

The *Herald of Trade*, of San Francisco, tries to come to the rescue of the honey adulterators of that city by a specious argument, showing that because the beekeepers of California are honest, any adulterations found in California honey here, in the East, must have been added here. We republish the article in question and only desire to add that we know from personal observation and the testimony of at least six reputable chemists here, that after the publication of the report by the Department of Agriculture on honey adulterations a general analysis of honey stocks was made, and in every instance where California honey was found adulterated, the adulterations were found in the barrels as received from California. A large lot of honey is now in storage in New York, subject to the order of certain San Francisco houses, which has been refused by New York dealers after such analyses. A pity it is true, but it's true, 'tis a pity.

ADULTERATED HONEY.

Large quantities of adulterated honey are sold in the Eastern markets as a pure California product. We have seen the statement that in a recent analysis of several brands of honey, ostensibly of California origin, none were found to be pure, and that the adulterated goods contained from twenty-five to thirty per cent of glucose. One sample labeled "pure San Diego honey" contained between seventy-five and eighty per cent of grape sugar or glucose.

Glucose may not be a dangerous, or even a deleterious adulterant, but why should there be any adulteration of California honey? The product is sold cheap enough by bee-keepers to permit its being placed in the hands of consumers in a pure state, and still afford the jobber and retail dealer a fair profit. The charge is made that the honey is adulterated in California. There can be no question but that it leaves the bee-ranches in a pure state, and if the practice of adding glucose is as common in this State as reports would seem to indicate, the adulteration is the systematic work of shippers.

Any man in trade, or any shipping firm that would take the chance of blasting the fair fame of a California product for the sake of the extra profit procurable by the adulteration of pure goods, makes a pirate of himself in the eyes of the commercial world. He may not hope long to escape discovery, exposure and the wrecking of all his prospects. The hand of every bee-keeper is against him and every shipping firm following legitimate methods of business, would be glad to give testimony against him and his mendacious practices. We are inclined to believe that the practice is not as common in this State as has been intimated, and that if honey is commonly found adulterated in Eastern markets, the fraud may be traced to an Eastern origin.

However, it matters not for the purposes of this article, whether the honey is adulterated East or West. It is our purpose to advise the trade that there is but one safe course to pursue in such a condition as confronts them in this matter, and that is to buy the well-known brands of established houses in this line. There are a number of packers and shippers of pure California honey in San Francisco who will guarantee their goods. See that you get goods properly labeled. Buy no honey that does not bear the brand and name of some house of good standing in the trade in California products. There are many of them and their goods are reliable and always as represented. If purchases are made of unlabeled goods the guarantee of any established firm in California products is all that need be asked to insure the delivery of absolutely pure California honey as per shipping directions.

BOGUS CIDER.

A most artistically labelled and capped bottle marked "Pure Crab Apple Cider," but bearing no manufacturer's name, was sent to us for analysis. It had been sold at a high price by a fancy grocer who is supposed to sell only the best and purest goods. The results of our analysis were astonishing. This "pure crab apple cider" was made of aldehyde, chloroform, acetic ether, valerianate of amyl, tartaric acid, caramel and water with syrup to sweeten. There was not a particle of apple in it and ten gallons of it could be made for less than fifty cents. The taste was good. After satisfying ourselves what it was made of, we tried to make some by a formula constructed upon the results of our analysis and found the result to be a most excellent tasting cider. Of course we shall not publish the formula; we are not in the business of furnishing such formulas. We are endeavoring to ascertain where the genius who makes this "cider" holds forth that we may call the attention of the board of health to him. Meanwhile look to the maker's name on cider.

MEDICAL.

MEDICAL MISINFORMATION.

The kind-hearted busybody who is always ready to tell his sick friend exactly the right medicine to effect a sure cure, is a bad enough person; but the newspaper prescriber is a great deal worse, for his utterances acquire a certain fictitious authority in the eyes of many people because they appear "in the paper." Some dangerous outbreaks of this kind of prescribing have lately occurred in several English journals. In one a "cure for vertigo" was given in which "glonoin" was directed as an ingredient. This article is much better known to the public by its chemical name, nitro-glycerin, and the quantity of the "cure" directed to be taken at one time, would give the patient a 2¼ grain dose of this violent remedy. In another paper a prescription for "pains in the head" was given, in the taking of which the unfortunate patient would be dosed with one-sixth of an ounce of nux vomica tincture, three times a day. Still another recipe in the same paper orders as a "hair tonic" a seven-ounce mixture, containing one ounce of strong ammonia water, and two ounces of tincture of cantharides. The same style of medical tinkering may not infrequently be observed also in newspapers printed on this side of the water; although it is perhaps uncommon to find such dangerous ignorance displayed as has been recorded above. We have in mind a note on the treatment of insomnia, in which a mixture of chloral hydrate, potassium bromide and codeine was directed in pretty stiff doses, on the authority of a foreign physician who "highly recommended" it. The use of such a prescription under the direct supervision of a medical man and its employment by an unskilled layman might of course easily make the difference between life and death, or between temporary help and the most wretched slavery.

People have a great deal too much half-knowledge about drugs already, and the less attention they pay to newspaper prescribing the better. Here, as in the regular kind, the pharmacist is bound to stand between the patient and danger. When a customer comes to him with a nitroglycerin recipe, or a blistering hair tonic, he must promptly warn him of the true state of affairs, and by his watchfulness, much damage can be averted and the cause of education be a little helped.—*Exchange.*

TREATMENT OF INGROWING NAILS.

This is a complaint that is frequently observed between the ages of fifteen and twenty years. It is usually the result of the pressure which tight shoes inflict on the fleshy portions of the inner part of the big toe. The flesh pressed against the edge of the nail is first cut and then ulcerates. An ingrowing nail may exist on one side only or on both at the same time. With very few exceptions, it is found on the inner part of the big toe, of which it occupies either only a portion or the entire extent. The symtoms are redness and pain in the depression at the side of the edge of the nail; the spot gradually ulcerates, discharges, and from the bottom of it appear granulations, which gradually increase in size and grow over the outside surface of the nail. The pain prevents the patient from walking properly, and even from putting on shoes. The means of treatment that have been proposed are very numerous, and can be distinguished from each other according to whether they aim at isolating the nail from the flesh, or at removing the latter, or at treating the nail alone, or at treating at the same time the nail and the ulcerated spot on the toe.

Cures have been effected by all of these different processes; nevertheless, at the present time and owing to the frequent occurrence of the complaint, the majority of surgeons think that the best method is that which has recently been recommended by a French surgeon, because this process, by attacking the bed of the nail itself, prevents all possibility of its growing again. This operation, however, can only be done by a surgeon, and to-day I wish to recommend to my readers a method of treatment that has been used by Dr. Purklauer with great success, and that has just been published in the *Nice-Medical.*

Dr. Purklauer's object is to remove the portion of the nail nearest the ulceration, and for this purpose he touches it with a warm forty per cent solution of caustic potash. In a few seconds' time the nail becomes quite soft and can be scraped as easily as butter. The applications and scrapings are continued until there is nothing left of the nail but a thin layer about as thick as a sheet of paper, which can be raised with small forceps and lifted out of the swollen flesh which covers it and removed by means of small scissors. The patients recover without losing a drop of blood or feeling the slightest pain, and can go about their affairs at once, as no consecutive treatment is necessary. If the nail appears again later on, all that is required is to thin it down by the same process without cutting it off.

BICYCLES AND THROAT TROUBLES.

Among the numerous ill consequences of the employment of the bicycle, bicyclet and tricycle, there is one which I believe has not been reported, namely, the development of catarrhal laryngitis. A number of young people have consulted me for a derangement of the throat, stated to be of recent origin. They complain of a sensation of dryness and pricking, and even burning in the throat; then cough begins, and is attended with mucous expectoration sometimes streaked with blood. Finally the voice grows husky, and it is then that these patients determine to seek medical advice. They are all daily, and sometimes immoderate, users of the bicycle or tricycle, and in every instance in which a prolonged, and especially a rapid, trip is made on one of these vehicles a recurrence of the laryngeal affection is induced.

The laryngoscopic examination shows at first a state of dryness and marked congestion of the pharynx; the mucous membrane is of a wine-red color, injected, and studded with granulations; the vocal cords are of a pale red, but always colored, contrary to their normal state, and their surfaces coated with somewhat tenacious mucus.

All these young people (18 to 27 years, nine cases), were in excellent health; lungs absolutely sound. One only of the nine presented a slight amount of pulmonary emphysema; no hereditary disease.

All who have employed the means of locomotion above described know that it is necessary to use much force in ascending grades and in maintaining a certain degree of speed on ordinary roads; and it is precisely this effort that is the cause of these disorders. The velocipedist inclines his body forward, a position that hinders free respiration. Then the force required for the propulsion of the bicycle augments the demand for air, and necessitates mouth respiration, that by the nose being insufficient. Finally, to complete the picture, the velocity of locomotion causes a large amount of air to enter the larynx and the lungs with enormous rapidity, and consequently, with a degree of pressure proportionately high.

The removal of the cause and appropriate treatment brought about rapid recovery.—*Revue de Laryngology: Memphis Medical Journal.*

BIRD SURGERY.

The faculty of birds for weaving and building nests—some of which display wonderful ingenuity and skill—can be turned to account by them, it seems, in various other ways. It is related that a farmer found two young birds in a nest in his barn, one of which had had one of its legs whipped with horse-hairs, such as nests are most commonly woven from. Curiously untwining it, he found that the leg was broken. The next day, the broken leg was found to have been dressed again as before by the parent bird. After some time it was found that the hairs were being carefully removed, one by one, from day to day, until at length the bone was firmly united.

Authenticated instances of the kind are also derived from a communication by M. Fatio to the Physical Society of Geneva. On one occasion he killed a snipe which had on the chest a large dressing composed of down taken from other parts of the body, and securely fixed to the wound by the coagulated blood. Twice he had brought home snipe with interwoven feathers strapped on the site of fracture of one or other limb. A snipe both of whose legs he had unfortunately broken by a misdirected shot, was recovered on the day following, and he then found that the poor bird had contrived to apply dressings and a sort of splint to both limbs. In carrying out this operation some feathers had become entangled around the beak, and now not being able to use its claws to get rid of them, it was almost dead from hunger when discovered. In a case recorded by M. Magnin, a snipe which was observed to fly away with a broken leg, was subsequently found to have forced the fragments into a parallel position, the upper fragment reaching to the knee, and secured them there by means of a strong band of feathers and moss intermingled. The observers were particularly struck by the application of a ligature of a kind of flat-leaved grass wound round the limb, in a spiral form, and fixed by a sort of glue.

JAPANESE DENTISTRY.

TOOTH EXTRACTION BY THE FINGERS.

In Japan the dentist extracts every tooth, be it upper or lower, incisor or molar, without the use of an instrument, his fingers having been trained to take the part of the forceps. And, although it may seem incredible, it is nevertheless a fact that the Japanese dentist is more proficient in his art than his European brethren, and here is the way that he arrives at his proficiency:

In a board of soft wood, holes are drilled, and in the holes pegs are inserted loosely.

The board is laid on the floor, and the apprentice tries to pull out every peg perpendicularly without in the least disturbing the position of the board, using the thumb and forefinger of his right hand. Able to do this, the pegs are inserted tighter, the thumb and forefinger gaining strength and dexterity in manipulation as he keeps on practicing.

Having perfected himself at the pine board, an oak board is substituted, the oak pegs being driven in tightly. There he practices for weeks and months, till, finally, the oak pegs succumb to the skill and power of his fingers.

The third and last term comprises the extracting of maple pegs, very tightly fastened into a maple block. Passing the required examination at this block, he is graduated and sent forth to try and pull "human pegs."

There we see him take a position similar to one we would assume, hold the jaw and keep the mouth open with his left hand, whilst with the two fingers of his right he passes into the mouth and extracts, if necessary, five to seven teeth in a minute.

NEW ANTISEPTICS.

Among new antiseptics from coal tar derivatives, says S. A. Walton, may be mentioned pyoktanin, methylviolet, the most antiseptic of the aniline colors. A solution of 1 in 1,000 is used in various eye diseases, phthisis, ulcers, etc. There is a yellow variety commonly known as auramine also used antiseptically.

Lysol is a saponified phenol derived from cresols, and contains the higher homologues of carbolic acid. It is said to possess higher antimycotic power than carbolic acid, and to be less poisonous. This preparation is much used in Germany at the present time.

Retinol, a distillation product of pine resin, is a viscid fluid hydrocarbon It is a non-irritating and stable antiseptic.

Europhen, iso-butyl-ortho-cresyl-iodide, contains 23 per cent of iodine, and is non-poisonous.

Dermatol, a basic gallate of bismuth, forms a powerful antiseptic and dessicant.

Sulphaminol, thio-oxydiphenylamine, the antiseptic action of which is due to its decomposition in contact with the fluids of the body into sulphur and phenol.

Monochlorphenol is prepared by the action of chlorine on cooled phenol. It is a powerful antiseptic and less irritating than trichlorophenol.

Camphoid, though only a mild antiseptic in itself, is a valuable adjunct to this class of bodies, as it forms a ready method of applying antiseptics to the surface of the skin, and owing to its composition (of spirit, camphor and pyroxylin), it forms a valuable solvent for substances such as salicylic acid, resorcin, hydronaphthol and many others.

SPONGING OUT A HEADACHE.

In case of an ordinary nervous headache from which women suffer so much, says an authority, remove the dress waist, knot the hair high upon the head, out of the way, and, while leaning over the basin, place a sponge soaked in hot water, as hot as can be borne, on the back of the neck. Repeat this many times, also applying the sponge behind the ears, and if the assertion of the writer is not a mistaken one, in many cases the strained muscles and nerves that have caused so much misery will be felt to relax and soothe themselves out deliciously, and very frequently the pain promptly vanishes in consequence.

Every woman knows the aching face and neck generally brought home from a hard day's shopping, and from a long round of calls and afternoon teas. She regards with intense dissatisfaction the heavy lines drawn around her eyes and mouth by the long strain on the facial muscles, and when she must carry that worn countenance to some dinner party or evening's amusement, it robs her of all the pleasure to be had in it. Cosmetics are not the cure, or bromides, or the many nerve sedatives to be had at the drug shop. Here, again, the sponge and hot water are advised by the writer quoted, bathing the face in water as hot as it can possibly be borne. Apply the sponge over and over again to the temples, throat, and behind the ears, where most of the nerves and muscles of the head centre, and then bathe the face in water running cold from the faucet. Color and smoothness of outline return to the face, an astonishing freshness and comfort results, and, if followed by a nap of ten minutes, all trace of fatigue vanishes.

CHRONIC ARSENICAL POISONING.

A good example of chronic arsenical poisoning on a large scale occurred in County Asylum, Berrywood, and a short account of it may be both interesting and instructive. In the endeavor to make the wards of an asylum bright and cheerful, and to do this at as little expense as possible, it is not improbable that the nature of the coloring materials used may be overlooked, and that some of the gastric and intestinal disorders which disturb the peace of mind of medical superintendents may be cases of arsenical poisoning. For a long period the nurses here were in poor health. First one and then another was laid down until, within a few months, nearly every nurse on the staff had been, or was, under medical treatment. Headache, neuralgias, gastric derangements, loss of appetite, constipation or diarrhœa, irritation of eyelids, anæmia—these were the chief symptoms complained of. Drugs did not appear of much avail, but a holiday had a marked effect for good. At last one nurse had the eye symptoms in a more pronounced form, and suspicion was aroused. In each nurse's room was a green baize curtain, used as a covering for dresses, etc. A portion was taken and examined. It was found to be impregnated with arsenic to an astonishing extent. These curtains were removed; the rooms freely ventilated; medical treatment was stopped; the symptoms disappeared, and, though some months have elapsed, have not returned. The baize was similar to that used for covering doors, etc., and was obtained from two manufacturers.—*W. Harding, M.B., in the Lancet.*

MEDICAL DON'TS.

Don't forget that muscular inactivity is the parent of more ill-health than any other single cause whatever.

Don't forget that rheumatic patients should lie between woolen sheets, which can be bought ready-made in any large town.

Don't sit between a fever patient and the fire, or attend, before eating, to any one suffering from a contagious illness, or come into such presence while perspiring.

Don't forget that gout, rheumatism, lumbago, neuralgia, and gall stones are caused by an excess of lithic acid in the blood. This acid can be reduced by the free use of grapes and lemons, which, among fruits, contain the most potash.

Don't forget that proper disinfectants should be dissolved in hot water, and then poured down the sink and closets at least once a week, for even dish-water will coat a drain with substances that will decompose and send into the house poisonous gases.

Don't forget that simple surprises bring pleasure to a convalescent, as a dainty dish of appetizing food, a new game, a few flowers for them to arrange, a new crochet pattern, a collection of unmounted photographs, to be mounted on small cards or calendars, as they might prefer.

FEEDING A DELICATE BABY.

There are three points to be considered in feeding a delicate baby.

The kind of food.

The quantity given at once.

The time between the meals.

The kind of food must, of course, depend upon the child; what agrees with one cannot be taken by another, while it exactly suits a third. A good receipt is one tablespoonful of milk, two tablespoonfuls of cream, two tablespoonfuls of lime water, and three of boiled water, sweetened with a tiny pinch of milk sugar. Make it milk warm and the food is ready for use. This is sufficient for one feeding for an ordinary sized baby until it is two months old; after that gradually increase the quantity without changing the proportion of the ingredients.

IMPROPER USE OF CONCENTRATED DIET.

BY FRANK S. HOUGH, M. D.

In treatises on the physiology of digestion, there is always a great deal said in regard to the digestibility of certain foods, as compared with others; and so much about the relative nutritive virtues of different edibles, that medical men, in choosing articles of diet for the invalid, generally make their selection solely upon these two principles A food, or a variety of foods, is selected, which will answer both conditions: that of easy and prompt digestibility, and high nutritive power. What is the result? The patient is fed on a concentrated diet, and even though his appetite be far from robust, he takes into his stomach a quantity of "highly nutritious" food, which contains nutritive principles far in excess of the power of his system to appropriate. It is a well known fact that the system will only extract a sufficient quantity for its use; the remainder is not assimilated, but is passed on with the remainder of the excrement. In the feeble condition of the nervous system, the extractive, or assimilative process, is limited, markedly, and the invalid does not improve in a ratio proportionate to the quality of the diet. The food is easily digested, but being the more easily digested, all the more of it is digested, and, consequently, the labor to the stomach, instead of being materially lessened, is actually increased. What does it matter if the stomach digests ten pounds of food, if only one ounce is accepted in its passage through the tollgate? Although, as stated, the great portion of the concentrated food is unappropriated, still the quantity passed on as excrementitious matter is not enough to secure thorough peristaltic action of the intestines, and, consequently, constipation is the result.

With these preliminary remarks, I will give you my conclusions:

1st. That nourishing food is a great desideratum.

2d. That digestibility is also a great desideratum.

3d. That concentrated foods should be allowed in quantity not much in excess of the requirements of the system.

4th. That foods possessing high nutritive power should be associated with foods of very low nutritive power, the latter to be the bulk of the diet.

5th. That concentrated foods cause constipation and irregular action of the excretive function.

6th. That bulky foods, of low nutritive power, exert a marked salubrious tendency toward keeping the bowels regular, and enhancing the health of the patient.

Fruits and vegetables, as a rule, are acceptable to most patients. They are not very nourishing. (comparatively) since they contain so much water and fibre; still they are very useful in the "make up" of a regimen for the invalid. What portion of them that is digestible, is digested, and the remainder (with some few exceptions) passes on without irritating, to swell the volume of excreta, thereby giving the intestines something material to work upon, and forcing a passage. It is not the quantity retained in the lower intestinal tract but the length of time it remains there, which favors the putrefactive changes taking place in the fæces of the constipated. This process of ultimate decomposition renders the condition, constipation, so inimical to the patient's health, or progress towards health. Some fruits or vegetables are agreeable to one patient and the reverse to another. Find the one that suits and eliminate the other.

Personally, I believe that a well-baked apple at each meal, or even two, if the patient's appetite permits, is about the "proper thing," suitable as it is, to the great majority.

Don't forever be dosing your poor patient with physic; rather, choose some food which will answer the purpose.

The ideal diet, then, in my estimation, is a variety, containing a small portion of highly nutritious food, and a larger portion of food possessing easy digestibility, but low nutritive power.

RULES FOR EATING.

Dr. Paul Paquin says that the following rules should be observed:

1. Always select plain unseasoned food.
2. Never eat until stomach feels sense of weight.
3. Eat slowly and masticate well.
4. Never eat uselessly between meals.
5. Hard manual workers need more food than brain workers.
6. Flesh dishes are more stimulating than the vegetables, and should be used sparingly.
7. Meats are never needed three times a day.
8. Rinse mouth thoroughly on rising and before and after each meal.

SUMMER SPECIALTIES.

Sedative dust for tender feet.—*Pharmaceutical Era* gives this formula for a product useful after excessive pedestrian exercise: ½ oz. zinc oxide, ½ dram prepared chalk, 20 minims oil of eucalyptus, to be dusted freely over the feet, and into the heels and toes of the stockings.

For insect bites employ a mixture of two drams ammonia (specific gravity, 880), six drams alcohol, eight grains menthol; or, if the pain is severe, as from the stings of bees and wasps, the painful spots may be painted with a solution consisting of twenty grains cocaine hydrochloride, half ounce alcohol, three and a half drams rose water, half dram glycerine.

To prevent the attacks of insects there will be found useful this article: Spirits of camphor, one ounce, oil of eucalyptus, eighty minims, made up to ten ounces with soap liniment; or, for more æsthetic tastes use tincture absinthium two drams, cologne water thirteen drams, glycerine one dram.

For sunburn apply freely a solution containing one dram ammonium chloride, twelve grains cocaine hydrochloride, two drams glycerine, three ounces alcohol, one ounce orange flower water, made to six ounces with rose water.—*Medical World.*

TO KEEP OFF MOSQUITOES.

Lovers of Morpheus and others in want of a few hours of that nature's sweet restorer, "balmy sleep", will be glad to learn that the use of certain medicine has been found to effectually keep off mosquitoes. The idea was given me by a layman and I experimented with it the same night. I had hardly got into bed when I heard the musical notes of my friends, the mosquitoes, buzzing around me. I quietly poured three to four drops of oil of cloves on my pillow which had the effect of instantaneously dispersing the blood-thirsty gang who ceased their trouble for the night. I tried this for several successive nights with equally felicitous results, and enjoyed perfect, undisturbed rest. The same means were resorted to by my family and friends with similar gratifying results.—*Indian Medical Record.*

A writer in the *M. B. Druggist* tells us how to laugh at the mosquito. He takes a piece of camphor fully an inch square and half an inch thick; this he lays on the bureau—always exposed—in daytime, and on or near the pillow at night; has two windows and door of the room wide open, no bars, and draft through. This is the only remedy he ever tried that afforded thorough relief.

CARPETS AND INFECTION.—All thinking people will at once recognize that in the carpets lurks the germ of many a disease. One can shut his eyes and see the vision of the housemaid with a towel wrapped around her head, enveloped in a cloud of dust, energetically detaching the myriad of germs from their safe hiding places; great-grandmothers gloried in their polished floors, and their children inaugurated the wet tea-leaf when the carpet came into general use. If people will tightly tack down their carpets on a bare floor they should at least sprinkle it when swept, and once a week wipe up the whole floor with a cloth well saturated with Listerine. Once a year every carpet in the house should go through a steam-cleaner, and the floor should be scoured with boiling water and carbolic soap.

A TIME FOR ALL THINGS.—Editor (writing to professional humorist)—Send some more "grip" jokes.

Humorist (writing back)—Can't, I've got it.—*New York Sun.*

FOLLOWING DIRECTIONS.—Wife—Faith, Dennis, that is too bad; yer have oopset yer coffee; let me get yez another wan.

Husband (reprovingly)—How kin yez timpt me so, Biddy, when yez know th' docthur gave me strict orthers that Oi should not take more than wan coop at each meal? Pour it out in the beer mug, Biddy, dear, we must obey the docthur.

TEMPERATURE FOR THE BABY'S BATH.—The temperature of the water used for washing an infant should be nearly that of the surface of the body—96 deg. or 98 deg. F., writes Mrs. William E. Gladstone, in the May *Ladies' Home Journal.* As the child grows older, the heat of the water should be gradually lessened, while the limbs should be allowed free exercise in a large tub. Some children do not bear cold water well; good sense, discrimination and observation should be our guides in this as in all other matters.

HAD NO SYMPTOMS.—"Now, my little man, describe your symptoms." "I haven't dot any symptoms, I dot a pain."—*Harper's Bazar.*

FOR SORE NIPPLES.—Dr. Frank Van Allen, Madura, India, communicates to the New York *Medical Journal* a simple remedy, the knowledge of which will be, according to his experience, a boon to nursing mothers in cases of sore nipples. At the first experience of sensitiveness they should be painted several times a day with the white of egg, which forms a delicate and soothing protective film, under which the surface is soon healed.

MASSAGE OF THE STOMACH.—Dr. Cseri (*Pest. Med. Chir.*) claims to have achieved the most brilliant results in the treatment of chronic digestive disorders by the employment of massage of the stomach two or three hours after the chief meal, for ten or fifteen minutes; rubbing and kneading the stomach, from the fundus toward the pylorus, at first gently, but afterwards more forcibly. The patient lies on his back, having his knees drawn up, and breathing with his mouth open. After the stomach has been thoroughly kneaded, the massage is extended over the intestines.

OXYGEN GAS seems only beginning to try the wide range of its life-saving powers. Among critical cases are named angina pectoris, gas poisoning, and forms of asphyxiation generally, in which its action is marvelous. Poisoning with chloral, chloroform narcosis, and some of the most critical emergencies of the operating room and the sequel of operation, lose their dangers to a great extent in its presence. It seems as if it must be the sovereign resource for artificial respiration in case of apparent death from drowning and various other cases. In short, wherever a lift is what is wanted to start the life engine off a dead centre, the desired agent may perhaps in most cases be found in oxygen. Professor Bernstein shows that relatively but a small part of the oxygen imbibed by the organisms is consumed outside of the muscles.

WARTS.—The fact, it is said, is fairly established that the common wart, which is so unsightly and often so proliferous on the hands and face, can be easily removed by small doses of the sulphate of magnesia taken internally. M. Aubert cites the case of a woman whose face was disfigured by these excrescences, and who was cured in a month by a dram and-a-half of magnesia taken daily. Another medical man reports a case of very large warts which all disappeared in a fortnight from the daily administration of ten grains of the salt.

Rancidity of Fats.—M. Ritsert has published in the *Revue Scientifique* a very interesting paper describing the experiments made by him to solve the question of the cause of the rancidification of fats. He first directed his attention to the micro-organisms always present in fats. Isolating these and sowing them upon sterilized fats, he found that no acids were produced, and further, that subsequent enumeration of micro-organisms demonstrated that these not only did not grow and increase in numbers, but that most of them actually perish when placed in contact with sterilized fats. The inoculation in sterilized fat with rancid fat produced the same negative results. These experiments eliminated the microbian theory of the origin of rancidity. On exposing the inoculated fats to the direct sunlight, M. Ritsert noticed that the bacteria, etc., died more rapidly than when the direct light was excluded, but at the same time the fat became rapidly rancid. Light, therefore, seemed to be a direct agent in rancidification. This point fixed, the experimenter next turned his attention to the atmosphere, or the gases which constitute it, and investigated whether it or they played any role in the phenomenon. Nitrogen and oxygen alone, either or both of them have no effect in the dark upon fats, and nitrogen alone none in the light, but oxygen and light effect rancidification rapidly. Rancidity, then, is an oxidation, but one that is never produced in the absence of light. Hence, fats kept in absolute darkness will not become rancid.

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How to Drink Seidlitz Powder.—A writer in the *Western Druggist* says: "I cannot refrain from drawing attention to a custom allowed even in first-class pharmacies, and not infrequently practiced by the pharmacists themselves, and yet which ought to be sufficient cause for dismissal if practiced by an employe; the dispensing of seidlitz powders by the use of *two* tumblers. The patron gulps down about one-half the contents, while the floor lays claim to the other half. The proper method, is to use a good-sized soda-water tumbler a little over one-third filled with water. Dissolve in this the rochelle salts and sodium bicarbonate (contents of blue paper), then add at once the tartaric acid and stir it a few times with a glass rod or silver-plated spoon. Mixed by this method, the patron can leisurely take the glass and drain its contents; the last of the tartaric acid is still evolving carbonic acid gas in connection with the sodium bicarbonate while he is drinking the liquid, and he obtains the much-desired result. That the old method is still practiced in many pharmacies, is evident from the eagerness with which many patrons attempt to swallow the entire contents at one gulp. To all such my advice is—Take your time, sir!"

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Beer Digests Oysters.—An interesting experiment was made the other day by a Washington physician to determine the relative effect of whiskey and lager beer upon the digestion of food in the human stomach. As oysters are regarded as self-digesting food, two fine specimens were selected, one being placed in a glassful of beer and the other in a similar vessel about half full of whiskey. The oysters were allowed to remain in their respective receptacles all night. In the morning they were examined by the physician, who found that the bivalve which had been placed in the beer had dissolved, with the exception of the tough and indigestible heart, while the oyster in the whiskey had shrunk to half its natural size and was almost as tough as sole leather, no dissolution whatever having taken place. This novel experiment is regarded with much interest in medical circles.

HYGIENIC.

HINTS TO SLEEPERS.

There has been considerable discussion as to what is the best position to lie in, in sleep. Most physicians will tell you that it is on the right side but here no definite directions can be given. A weakness of the lungs may cause the sleeper to rest more comfortably on the left side. Again, in depressing illnesses, the patient usually lies flat on his back, and this position seems, in general, to contribute the greatest amount of rest to the muscles, yet few people would find it comfortable to sleep in this position. A position which has been advocated with considerable show of reason is that of lying partly on the face. All these positions have been advocated, and probably no healthful person sleeps altogether in either one of them, but varies his position to all of them during his resting hours.

The best bed coverings are light woolen blankets. The impervious cotton counterpanes, once so much used, are the most unwholesome of any covering. A hair mattress, as is conceded now, is the very best bed, and a single mattress with a set of good springs is all-sufficient. Where there are two mattresses over the springs they are not as likely to be well aired, and therefore are more likely to retain the exhalations of sleep. A good hair bolster is a most wholesome head rest, but many persons prefer a feather bolster, because they are not used to it. Sleeping with a number of pillows under the head is certainly injurious, as it tends to raise the head into a cramped unnatural position. The fashion of double beds is one greatly to be deprecated, and two single beds placed side by side are taking their place in many cases. So high an authority as the *Lancet* says in discussing the question: "Nothing will so derange the nervous system of a person who is eliminative of nervous force as to lie all night in bed with another who is absorbent of nervous force. The latter will sleep soundly all night and arise refreshed in the morning, while the former will toss restlessly, and awake in the morning fretful, peevish, faint-hearted, and discouraged. No two persons, no matter who they are, should habitually sleep together. The one will thrive, the other will lose."

CARE OF THE EYESIGHT.

WHAT TO AVOID AND WHAT TO DO.

Dr. L. Webster Fox has read before the Franklin Institution, Philadelphia, a timely paper on this subject. According to Dr. Fox, a new cause of eye trouble has been found in type-writing machines. A patient recently called upon him, who complained of sore eyes and a sensation as of sand under the eyelid. He examined the eyes carefully and found no organic weakness, and, on questioning the patient further, found that he had been using a typewriter with round keys, and that the most trouble was experienced while at work. He advised the use of a machine with a black keyboard and rectangular keys, and after a few months' trial of such a machine the patient had no further trouble.

Proceeding to the consideration of the daily occupations which are hurtful to the eye, Dr. Fox particularly condemned reading in street cars and in railway trains. The paper is usually held closer to the eye than on other occasions, because of the motion of the cars, and when this strain is followed up by a day's hard work, the effect is soon seen in congested eyeballs and eyelids. Short intervals of rest will save eyes engaged in exacting work, Dr. Fox said, and he suggested that persons working over books have a green disc placed in range of their vision, so that their eyes can rest upon it when they raise their heads after running up long columns of figures. For the same purpose he advised that the walls of schoolrooms should be hung with maps and pictures to relieve the eyes of children. This plan has been followed in the Francis M. Drexel public school, with beneficial results. For persons doing much writing the lecturer advised the use of paper tinted a green, blue, or yellow. He also explained the cause of headaches to many persons after a night at the theatre by stating that a drop curtain with poor perspective is very trying to the eye, and has been known to affect persons. The use of tobacco and quinine, said Dr. Fox, sometimes has an effect—producing color blindness. He thought railway engineers should be tested twice a year for this. In conclusion, Dr. Fox advised persons desiring to retain good eyesight to avoid the use of stimulants; avoid sudden changes of extremes in light; do not read lying down; rest the eye by looking at objects at a distance; be particular in matters of hygiene; bathe the eyes twice a day in cold water until about forty years old; do not use your own judgment in the selection or use of glasses; bathe the eyes in warm water after fifty years old; and do not be afraid of an operation for cataract. In conclusion, he formulates ten rules on the preservation of vision:

1. Do not allow light to fall upon the face of a sleeping infant.
2. Do not allow babies to gaze at a bright light.
3. Do not send children to school before the age of ten.
4. Do not allow children to keep their eyes too long on a near object, at any one time.
5. Do not allow them to study much by artificial light.
6. Do not allow them to use books with small type.
7. Do not allow them to read in a railway carriage.
8. Do not allow boys to smoke tobacco, especially cigarettes.
9. Do not necessarily ascribe headaches to indigestion; the eyes may be the exciting cause.
10. Do not allow the spectacle vendor to prescribe glasses.

WHAT THE BABY WANTED.

A Dr. Guster gave a German newspaper the brief but pathetic journal of a baby who, after thirteen days in this world, departed, leaving these reflections for our instruction:

First Day—Wonderful, heavenly! At last I am in this beautiful world! Who would have thought it, that one could breathe, freely breathe, and cry out what one thinks? I rejoice particularly in the sunlight and blue sky, in the fresh, pure air, with its coolness. If I could only see and feel all this splendor!

Second Day—O, this horrible heat! I have been deceived. This air, this water, this light; how entirely different have I imagined it would be! But patience, all will come right by and by. The old woman who cares for me does not seem to understand me.

Fifth Day—Still no solution. If it goes on this way, I cannot hold out long. The whole livelong day I must lie buried in feather cushions so that I can scarcely gasp down a bit of air. Two linen and one flannel binders, a little shirt, a flannel slip, a long cushion filled with feathers in which I am wrapped from head to foot, over this a coverlet filled with feathers, the curtains of my crib drawn to, the room darkened with double curtains, the windows closed, so must I, poor worm, lie from morning till evening. My burning skin is worse off than the hot stove near me, which can at least, as I feel, give off its heat. O, that I did know what I shall do! If I cry, it brings the old woman with her milk, which increases my misery; if my hands are cold while my brain and skin are burning, she brings a few more wraps. I turn my half-closed eyes from side to side seeking help, and my tormentor says "the baby shivers," and really heats the horrible things at the stove. Will no one come to my relief?

Tenth Day—Again a fearful night! I cry, but I am not understood. I must drink, drink, and again drink, until the stomach overflows. A half-hour later they give me something with a horrible taste from a teaspoon. Air, air, pure, cool air, light, water! Shall I then have no help from this world?

Twelfth Day—Yesterday there was a great council of my aunts and cousins. Each one advised a different remedy for my sickness, but all agreed that its cause is a cold. Warmth was urgently recommended, and I received a new kind of infant food, just discovered, and some strengthening wine, which heated my brain yet a little more, so that I was deathly still. My body is wrapped so tightly with the roller that my stomach overflows every time a teaspoonful of anything is given. My feet are forcibly extended and enveloped, so I cannot bring them up to relieve the pain, but my feeling is gradually going. Would that all were soon over!

Thirteenth Day—Farewell, thou beautiful world! Thy light and thine air have been denied me, but thither, where I go, there are no fetters. —*Sanitary Inspector.*

AN OBJECT LESSON IN ATHLETICS.

The Greeks were a wonderfully athletic race. They had their games, their races and their boxing matches, and the great events which marked their chronological period were the Olympian games, to which they gave so much attention. On the contrary, the Jewish people had their festivals, their seasons of solemn joy and praise, but no games, so far as we know. They paid no special attention to athletics, and yet, notwithstanding their dispersion and chastisements, the jewish people outlive all other peoples, and have maintained their existence through successive centuries, while other nations of greater physical strength, and devoting much of their time to physical culture and athletic exercises, have melted away, sunk into insignificance, or perished.

We sometimes meet a gentleman in the prime of life, who is constantly crippled in his efforts in business by a disease of the heart, which he explains to be the result of rowing with his athletic friends in his earlier years. Numerous similar cases are said to exist. The *Health Journal* says: "Of thirty-two all-round athletes, the safest kind, in a New York club of five years ago, three are dead of consumption, five have to wear trusses, four or five are lop-shouldered, and three have catarrh and partial deafness." The writings of the eminent London physicians, Drs. Fothergill, Clifford, Albut, and Moxon, show the intimate relations between mechanical strain and diseases of the arteries and of the valves of the heart. Dr. Patton, chief surgeon of the United States National Soldier's Home, says that while, of the five thousand soldiers in the home, fully eighty per cent are suffering from heart disease in one form or another, due to the forced physical exertions of the campaigns, he makes the prediction that as large a percentage of the athletes of to-day will be found twenty-five years from now to be victims of heart disease, resulting from the muscular strain they force themselves to undergo.—*The Christian.*

HOUSEHOLD.

CLEANING LACE CURTAINS.

Lace curtains will not bear rubbing. All the work must be done carefully and gently. For two pairs of curtains half fill a large tub with warm water, and add to it half a pound of soap, which has been shaved fine and dissolved in two quarts of boiling water; add also, about a gill of household ammonia. Let the curtains soak in this over night. In the morning sop them well in the water, and squeeze it all out; but do not wring the curtains. Put them into another tub of water, prepared with soap and ammonia, as on the night before; sop them gently in this water, and then after squeezing out the water, put them in a tub of clean warm water. Continue to rinse them in fresh tubs of water until there is no trace of soap; next, rinse them in water containing bluing. After pressing out all the water possible, spread the curtains over sheets on the grass; or, if you have no grass, put them on the clothesline. When they are dry, dip them in hot, thick starch, and fasten them in the frame that comes for this purpose. If you have no frame, fasten a sheet on a mattress, and spread the curtains on this, pinning them in such a manner that they shall be perfectly smooth and have all the pattern of their border brought out. Place in the sun to dry. If it be desired to have the curtains a light ecru shade, rinse them in weak coffee; and if you want a dark shade, use strong coffee.—*Ladies' Home Journal.*

CAVIAR.

Caviar, which is made from the eggs of the sturgeon, is an important article of exportation for many cities of Russia and Astrakhan, and principally Taganrok. The annual amount is estimated at 40,000 pounds (1 pound=35 pounds). The greater part goes to Turkey, Greece, Italy, and Germany, very little to England, and still less to France. The fisheries are situated at the mouth of the Volga, upon the banks of which stand vast storehouses with basement and cellars in which are found the tubs that contain the brine used in the preparation of caviar. The most profitable fishing is done in autumn, this season yielding the largest quantity of eggs. In winter, the fishermen make large holes in the ice and fish with the spear. At all other times they use nets, about 300 feet in length, to which are attached cords provided with hooks. Each of these is strong enough to hold a fish of large dimensions. Each establishment owns a fleet of boats. The fishes brought on board are laid upon boards and covered with salt, and are then opened for the purpose of extracting the eggs and the entrails, which the Russians are very fond of, and which they eat in a fresh state. For exportation, caviar is prepared in two different ways: 1. The eggs are washed and then immersed in strong brine for three quarters of an hour and finally allowed to drain. In this way "granular" caviar is obtained. 2. For "compact" caviar, the eggs are first cleansed, then pickled and finally allowed to dry slowly. Then they are packed closely in canvas bags which are inclosed in wooden barrels, after which they are ready for shipment. A ruder process, but one much used in the trade, consists in immersing the eggs, immediately after collection, in brine, wherein they are left for several months, after which they are dried in the sun.—*La Nature.*

Certain acts can be rendered legal, but can never be made legitimate.

KALSOMINING.

Kalsomining, or wall coloring in distemper, is best done about this time of the year, when the walls are not too cold or too hot. It may be done, says the *Paint and Varnish Journal*, any time during the winter, so that the walls do not freeze. There are a good many preparations put up for this purpose and called by various names. However, if you are where you cannot procure this, it may be prepared in following manner: White—To 10 pounds best whiting use 1 1-2 pounds white glue, 1-2 pound alum and a little ultramarine blue. Put the glue in cold water, set it on the fire and stir until dissolved. Put about half a gallon of hot water over the whiting, and when dissolved add the glue, the blue and the alum, which must also be dissolved in hot water. Stir this mixture well and run through a sieve. For first coating this may be used while hot, but the other coats must be cold. If your color works too stiff, a little soap will help. All colors and shades are made by adding the dry colors. Before kalsomining, the crack and nail holes should be filled with plaster of Paris. Mix this with paste, and it will not dry so quickly. If you have a good brush and work as quickly as possible to avoid laps, you will have a good job of kalsomining. A nice stencil border run around the top of wall makes a nice finish.

GOOD RULES FOR THE MISTRESS.

When engaging a servant, be careful to explain her work to her, and let her understand that the work must be done in your way and not in the way of any former mistress she may have had, and this explanation must be made so that it shall not reflect upon the routine of any other household.

Try and arrange the housework so that each servant may have an opportunity to attend church on Sunday.

When your servants do well encourage them to do better by a few words of praise.

Do not allow them to have visitors until after certain hours in the evening.

Give your orders for the day to the cook as early in the morning as possible.

Insist upon being informed when anything is broken or lost.

See that the chambermaid wears a clean apron while making the beds, and that she knocks at the bedroom doors before entering.

Order the maid who opens the door not to leave visitors standing in the hall, nor to give parcels to strangers without previous instruction.

When you reprove, do so firmly and decidedly.

Only allow your rules to be broken once; let dismissal, with customary notice, follow the second offence.

Retain your temper under all circumstances.

Insist upon the punctuality of the family as well as upon the punctuality of the cook.

Be kind to your servants when they are ill, and thoughtful of them always; in nine cases out of ten the considerate mistress will be rewarded by faithful service.

Pay your servants' wages regularly. Do not allow them to go out without first obtaining your permission.—*Ladies' Home Journal.*

THE ETIQUETTE OF THE TABLE.

As a people, we Americans have been laughed at for eating too fast, and we are credited as being a nation of dyspeptics. Now, of course, this is generalizing, but you, the eldest daughter, have it in your power to make the hour at the dinner or tea-table one of real delight. It is an easy matter, you will find, to start some pleasant topic; to get your father and brother interested in the talk of the day, so that you all will eat your food more slowly, and you will achieve what the Frenchmen consider the great art—you will dine, not merely feed yourself. But there are a few little questions about the etiquette of the table that some girl wants to know, and these I am going to tell her. She must hold her knife by its handle, and never let her fingers reach up to its blade. Whenever it is possible, a fork must be used in place of a spoon, and that same spoon, by the by, must never be left in a coffee or tea cup, but laid to rest politely and securely in the saucer. Glasses with handles are held by them. A goblet should be caught by the stem, the fingers not entwining the bowl part. Don't butter a large piece of bread and take bites from it; instead, break your bread in small pieces, one at a time, and butter it, that is, if you are eating butter, and convey it to your mouth by your fingers. Olives, celery, radishes, strawberries with stems, and asparagus are all eaten from the fingers. The old method of eating cheese with a knife has been given up, a fork being used in its place. The use of many small dishes for vegetables is not in good taste; indeed, many vegetables should not be served at one time. —*Journal.*

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HINTS ON CARPET LAYING.

To be read to people who insist on laying their own carpets: Lay the linings on the floor, putting a small tack here and there to keep them in place. Put the carpet on the floor, unrolling it in the direction in which it is to be laid. Begin to tack it at the end of the room which is most irregular. If there be a fireplace or bay window in the room fit the carpet around these places first. Use large tacks to hold the carpet temporarily in place; they can be withdrawn when the work is finished. When the carpet is fitted to a place, use small tacks to keep it down. Tack one end of the carpet, stretching it well; then a side, then the other end, and finally the other side. Be careful to keep the lines straight and to have the carpet fit tightly; for, if it be loose, it will not only look badly, but will not wear well.—*Dry Goods Chronicle.*

* * *

Allspice.—The island of Jamaica produces about all the allspice that is used. It is known, also, as pimento, or Jamaica pepper. The tree on which the berries grow is evergreen and the flowers grow in dense clusters; these develop into small green aromatic berries, the size of black pepper. If allowed to ripen they become pulpy and lose some of their pungency. For commercial purposes, the berries are gathered when green, carefully dried in the sun, and afterward packed in bags holding 160 to 180 pounds, and shipped. Pimento trees grow in many parts of tropical America, but nowhere do they thrive as in Jamaica. The trees are never planted by man and receive no cultivation worthy of the name. The seeds are dropped by birds, and the rains and the tropical sun do the rest. Surplus trees are cut down and become walking sticks and umbrella handles. This spice is more mild and innocent than most other spices, and is sold by the growers for twopence a pound.

* * *

How to Judge Good Flour.—In selecting flour, first look to the color. If it is white, with a yellowish, straw-colored tint, buy it. If it is white, with a bluish cast, or with white specks in it, refuse it. Second, examine its adhesiveness—wet and knead a little of it between your fingers; if it works soft and sticky, it is poor. Third, throw a little lump of dry flour against a smooth surface; if it falls like powder, it is bad. Fourth, squeeze some of the flour tightly in your hand; if it retains the shape given by the pressure, that, too, is a good sign. It is safe to buy flour that will stand all these tests. These modes are given by all old flour dealers, and they pertain to a matter that concerns everybody—the staff of life. It is maintained, says *The Millstone*, that the inferior quality of certain kinds of wheat and rye flour is frequently due to the action of sunlight on the flour; even when in bags or barrels the gluten experiences a change similar to that occasioned by heating in the mill. The tendency thus imparted to it to become lumpy, and to form dough without toughness, is similar to that of most grain or flour when it is too fresh, or made from grain ground too early, or when adulterated with cheaper barley meal. Such flour can be improved by keeping some weeks.

* * *

How to Cook Green Peas.—This delicate and delicious vegetable does not require much water to boil them in. Before you put your peas into the boiling water, throw in a small lump of sugar, a good pinch of salt, and a few leaves of fresh green mint. If the peas are young and fresh, fifteen to twenty minutes' time will suffice to cook them; if they are not very young, they will require a much longer time; they should be boiled until tender; then drain off the water from them and add a lump of butter, and pepper and salt to your taste. Toss these about with the peas in the hot pan, then pour them into a hot dish and serve.

* * *

Furniture Polish.—Dissolve 4 ounces of orange shellac in 2 pints of alcohol of 95 deg. This will take from twenty-four to thirty-six hours, if the liquid is kept in a warm place and frequently shaken. Add 1 pint of oil of turpentine, and shake well. This will probably take up any residue of undissolved shellac. Add 2 pints of boiled linseed oil, and mix well by agitation. When thoroughly mixed, add 4 ounces of sulphuric ether and an equal amount of strongest water of ammonia, and agitate. Shake the bottle before using. This is said to be the best polish ever devised. It should be applied with a sponge, and very lightly. The furniture should, of course, be thoroughly washed and dried before its use.

* * *

Scalloped Shrimps.—Butter a baking dish, put in a layer of crackers, cover this with shrimps which have been boiled; then add a layer of stewed tomatoes, with bits of butter and seasonings of salt and pepper. Put in another layer of crackers, another of shrimps, tomatoes, and so on until the dish is full. Cover with crackers, sprinkle bits of butter on top, and bake a fine brown.

* * *

Veal Stew.—Cut the meat from a knuckle of veal, put the bones in a pot of cold water, cover it, and let water come to the boiling point; then set it back and let it stew slowly. Put a lump of butter in a deep pot, and when it is melted dredge the pieces of veal with flour, pepper and salt, and put them in the pot and brown slightly; then add a small carrot, an onion, and a little parsley. Season with salt and pepper, add the bones and their liquor, and stir gently for an hour, keeping the pot closely covered.

* * *

Scalloped Fish.—Boil a piece of haddock, or any other large fish; take out the bones and pick it to pieces. Put a quart of milk with a little piece of an onion and some chopped parsley over, to boil. Mix smooth half a cup of flour with a cupful of milk and the yelks of two eggs; when the milk boils add this with seasonings of salt, pepper and thyme; add three large spoonfuls of butter; boil up; butter a baking dish, sprinkle with crumbs, put in a layer of the sauce, then one of fish, and so on until the dish is full. Put a top layer of crumbs, with bits of butter, over all, and bake for an hour.

* * *

Pineapple Cream.—Chop fine a can of pineapple; put it to stew with a cupful of its juice and a pint of sugar; stew until clear, then set outside to cool. Put a quart of cream, not too rich, in the freezer; pack with salt and ice, and freeze for a few moments. When it begins to thicken open the freezer and stir in the stewed pineapple, adding more sugar if it is not very sweet. Cover the can again and freeze.

* * *

Veal Cutlets.—Put a spoonful of butter in a hot frying pan; add a tablespoonful of chopped onion, and fry for a few moments; put in your cutlets and brown them, adding salt and pepper as they cook. When they are thoroughly done sprinkle in a large spoonful of flour, and cook for a moment; then pour in some boiling water, stirring well to make the gravy smooth. Boil up and serve on a hot platter.

* * *

Chocolate Caramels.—Two cupfuls molasses, one cupful grated chocolate, one cupful milk, one tablespoonful butter. Boil steadily for twenty-five minutes, add two teaspoonfuls vanilla, set to cool in butter pans, mark off into squares.

* * *

Apple Jelly.—Cut up enough apples to make a gallon into quarters, leaving on the skins and cores; put them in the preserving kettle, with a quart of cranberries and a little water, and let them cook gently until they are very soft. Put in a bag and let the juice drip out. Measure the juice and return it to the kettle, with a good pint of sugar to each quart of juice. Boil down until it jellies.

ADULTERATION.

HONEY AND ITS ADULTERATIONS.

United States Department of Agriculture,
Division of Chemistry,
Washington, D. C., June 20, 1892.

Editor American Analyst.

Dear Sir:—The spirit which you show, of giving ample opportunity for everyone to be heard on the question of adulterated honey, is most gratifying; especially is your invitation to dealers whose goods have been found to be adulterated, to explain the matter in your columns, an evidence of good faith on your part that you wish only to do justice to the parties. I have read with much interest the letters from different manufacturers in your issue of June 15. In one of these letters reference is made to me in a way which seems to call for some explanation and I beg the favor of being allowed a small space in your columns to make some comments on the letter from Charles F. Muth & Son, published on page 211 of the issue mentioned.

I have no desire whatever to do Mr. Muth any injustice, and I am ready at any time to make amends in case I have done so. I understand that Mr. Muth bears a very high reputation for honesty and straightforwardness among his associates, and I should be extremely sorry if anything I should say or do, should tend to diminish the esteem in which he is held. It was unfortunate for him that the samples of honey bearing his label should have been found to be adulterated. but it only shows the necessity which is incumbent on dealers to be more careful of their goods. From an ethical point of view, I will say I doubt very much whether Mr. Muth is justified in selling honey which he purchases in California as the product of his own Italian apiary.

He says, at least in his letter, that the amount of honey which he himself makes, is of very little importance commercially, while his chief business is in buying and selling honey. Mr. Muth, unconsciously or otherwise, perpetrates a fraud on the community when he sells honey produced by others as his own. It is not exactly adulteration, but it is a business process which is something nearly akin to it. With Mr. Muth's methods of doing business, however, I have nothing whatever to do; what I desire to call attention to is his statement that he left samples of honey with me and that the best I could say was "that they were adulterated and that one was probably pure." Now Mr. Muth has either never read my report on these honeys or else he purposely misconstrues it, or he has forgotten what I said. The report to which he refers was not made at Flint, Mich.,but that is not a matter of any consequence, but it was published in the *American Apiculturist*, Vol. III, No. 12, 1885. It is published verbatim in Bulletin 13, Part 6, page 801, et seq. I beg you to turn to that report and see how grave an injustice Mr. Muth has been guilty of.

The statement in his letter is one which we would not expect to come from one of his high standing in the community, and I feel very sure that Mr. Muth will cheerfully correct it when his attention is called to it. I would caution Mr. Muth, however, in this matter, about depending too much upon his memory in matters of such grave importance.

I did not pronounce a single sample of honey obtained from Mr. Muth, to be adulterated. There were a few samples obtained from him, described on page 802, but which, it is expressly stated in the description, were not grown by him. One was No. 14, described as a sample from Louisiana; another was No. 16, described as a sample from Florida; another was No. 17, described as a sample from Florida. These numbers, 14, 16 and 17, are included in a table on page 804, which is headed "Honeys apparently adulterated with inverted sucrose." On page 805, in describing this table, I use the following language: "These sixteen samples I have grouped together on account of their great levorotatory power. * * * It is possible that this great deviation to the left may have been due to the entire absence of dextrine or sucrose in the honeys, or that it might have been produced by the bee food being rich in sucrose, which suffered a nearly complete inversion in the body of the insect."

"It would be quite improper to definitely assert that invert sugar syrup had been added as an intended adulterant. I think it quite possible that bees having access to sucrose food might at one time produce a honey like that in table No. 2, and at another like that in table No. 3."

At the same time I received these samples of honey from Mr. Muth he gave me other samples which were produced by himself, described on page 803, viz.: Sample No 39 donated by C. F. Muth; sample No. 40 donated by C. F. Muth, and sample No. 43 donated by C. F. Muth. On page 805 I say of these samples: "These honeys, obtained directly or indirectly from well known apiarists, I have every reason to believe to be pure. If they contain any adulteration it has been added by artificial feeding and not intentionally. It will be observed that these honeys are strongly levorotatory, and indeed, so much so, that some of them might have appeared in table No. 3."

Now, Mr. Editor, I do not have the honor of your personal acquaintance but I leave it to you to say whether or not any fair-minded man in reading my report would dare to say that I had pronounced the honeys in table No. 3 to be adulterated, or would Mr. Muth, if he had access to the facts of the case, have said in his letter that "the best Mr. Wiley could say of the samples was that they were adulterated and that one was probably pure." This old story that I pronounced genuine samples grown by Mr. C. F Muth, to be adulterated, has been going round through the bee journals for many years together with a vast amount of personal vituperation. I think it is about time for such publications to cease and thus I call attention, through your columns, to the facts in the case.

I also beg to correct another expression in Mr. Muth's letter, viz., the reference to the machine which is used for the conversion of corn starch into glucose. This reference to the machine was not made by Professor Scovell, as Mr. Muth supposes, but by myself in discussing Professor Scovell's data.

In the samples of honey purchased in the open market in the East, none bearing the label of C. F. Muth & Son was found. The adulterated samples of Muth's honey were analyzed by Professors Weber and Scovell, and the comments on the analyses were made by myself. You allude to this same reference as undignified, and perhaps it is so, but when I saw the enormous frauds which were practiced on the community by selling glucose as pure honey, and especially under the name of well known apiarists, I felt that some drastic measures were necessary to correct the fault.

I therefore sometimes may have indulged in the use of language not altogether proper, but if so I am ready to make any necessary apologies.

I am sorry to say that if Mr. Muth continues to depend on his own taste he will probably continue to sell adulterated honey to the end of time, labeled "absolutely pure," as I do not believe it is quite possible to discriminate by the taste between the pure and the adulterated article. I, however, am no expert as Mr. Muth is, and hence cannot express any positive opinion on this question. Mr. Muth claims that he is no adulterator. Will he now acknowledge, in a suitable way, that he is no misquoter of facts by acknowledging the error which he made in his letter to you?

I am only too anxious to join with Mr. Muth and all others who are disposed to put an end to honey adulteration, and it was for this purpose that Bulletin No. 13, Part 6, was prepared. I heartily endorse the sentiment expressed by Thurber, Whyland & Co., in favor of national legislation to prevent the possibility of such frauds as are indicated in Part 6. All the bee keepers themselves ought to join most heartily in this movement, for if the adulterated honey could be kept out of the market the price of the pure article would certainly be very much increased and their business become all the more profitable. The bee journals also should help this along, but, strange to say, instead of doing so they have devoted an immense amount of space to the personal abuse of the subscriber; denouncing his methods and his honesty, and questioning his veracity and his capacity, and denying absolutely that any adulteration of honey is practiced. I am at a loss, of course, to explain such conduct, but evidently there is a motive for it, otherwise they would be willing to accept the facts and help the good work along. I am,

Respectfully,
H. W. WILEY, Chemist.

MISCELLANEOUS.

TEASING CHILDREN.

A CASE OF THOUGHTLESSNESS.

The other afternoon I got into a car of the Sixth avenue elevated road, going up town. At the next station above where I entered the car, a father, mother, and a boy about five or six years old got into the same car. A seat was given to the mother, who made room for the boy beside her; after a time the father got a seat, and tried to persuade the boy to come over to him. The boy very irritably refused, and with pouting lips clung closer to his mother. A few stations further on a seat beside the mother was vacated, and then the father changed his seat to the vacant one beside his wife. Each moved, and the small boy was persuaded to kneel between them and look out of the window. No sooner was he comfortably settled than the father began amusing himself by pulling the boy's ears, pinching his cheeks, shoving his elbows off the window sill, pulling his feet. At every manifestation of anger or impatience the father would throw his head back and laugh. At last he made the boy cry, and his enjoyment reached a climax, as he now kept saying in an audible whisper, "Cry baby! cry baby!"

The poor little fellow was a painful object. He was very thin, had tiny bones, and was evidently worn out nervously, and without doubt his physical condition was due entirely to the thoughtless cruelty of his father, a big, healthy, careless, fun-loving man—I had almost written monster—selfish and dense to every finer emotion. The patient expression on the mother's face, as she mechanically soothed the boy, proved that the experience was too common to even arouse comment in her mind.

The next morning I picked up the *Tribune*, and turned at once to a report of the doings of Chautauqua; the proceedings of the woman's club were reported, the principal subject being the training of children.

"*Question*—How would you break a child of the habit of teasing? *Answer*—By breaking older people of the habit of teasing the child," were question and answer that brought vividly to mind the incident of the evening before.

What a future of rasped nerves and false standards of amusements was being established through a father's thoughtlessness!—*Christian Union.*

A DEMONSTRATION OF NAIL AND GLASS-EATING.

On March 24, a laparotomy and gastronomy were made at the city hospital, St. Louis, on a patient who had been in the habit of eating nails, screws, glass, etc., for dime-museum exhibitions, during the past eight years.

In this case the truth of the claims was demonstrated by finding, in the disabled stomach, a great mass, a pound or so, of shingle nails, sharp-pointed tacks, screws of various sizes, and broken-up glass; and this, after a considerable quantity of such materials had been gotten rid of by emesis.

Dr. Marks, superintendent of the hospital, vouches for the facts as given, and further asserts that, notwithstanding the belief of some that the stomachs of such glass-eaters are somewhat differently constructed from those ordinarily in use, this one presented no abnormal properties. The patient, before the operation, was suffering acutely, and had been much reduced by the ill effects of the foreign bodies. He died within twelve hours of the operation.

ELECTROLYTIC PRODUCTION OF CAUSTIC SODA AND CHLORINE.

A method of producing caustic soda and chlorine by electrolysis has lately been exhibited in England, which is confidently asserted to be capable of bringing about a complete revolution in the manufacture of these chemicals. The material operated upon is a solution of common salt, flowing through a series of decomposing cells, in which it is subjected to the influence of an electric current. The cathode of this arrangement is an iron plate, and the anode is formed of carbon plates with a metal core. Between the two is a screen, composed of strips of slate arranged like a Venetian blind, and packed with asbestos. The construction of these anodes constitutes an important feature of the invention, and the object of them is to facilitate the collection of the chlorine gas evolved by the decomposed sodium chloride, while the sodium by a secondary action is converted into caustic soda, which accumulates in the salt solution. The whole operation is conducted in such a manner as to be automatic, and the decomposition of the sodium chloride is stated to amount to at least 75 per cent of the material operated upon. As the chlorine is evolved, it is led away through tubes to an absorption vessel containing milk of lime kept in agitation, and thus bleaching solution is produced.

BONE THAT IS NOT BONE.

WHALEBONE.

Owing to a popular misconception, this substance, whose most appropriate name is "baleen" has been called "bone," while it really contains no bone whatever in its composition. It resembles, rather, a number of hardened hairs cemented together by a sort of gum.

Chemically, it consists of a basis of albumen hardened by a phosphate of lime; the latter, however, in a very small quantity, takes the place of teeth in certain species of whales, especially the Greenland and Southern whale.

A full-grown Greenland whale yields about a ton of the substance. Whaling vessels usually bring it in pieces of ten or twelve blades each, but sometimes, if the voyage is long, the sailors have time to strip off each blade and divest it of its hairs. In preparing them for use the blades are cleaned and softened by boiling for about two hours; while still hot, they are fixed in large wooden vises and shaved into the required sizes.

These sizes or stripes are dried smooth in steel scrapers, and polished with either emery or dry quicklime. Besides its original uses in stiffening corsets and the waists of ladies' dresses, whalebone or baleen is employed in making walking sticks, snuff boxes, covering telescopes and whip handles, and even making some kind of artificial flowers

The fibres detached in slicing the blades are used instead of bristles in cheap brushes, and sometimes instead of hair in stuffing mattresses. In its old use as ribs for umbrellas, it has been superseded by the lighter and more durable steel. Although the demand on the importer each year has been growing steadily less, its value has increased.

A SCHOOLBOY'S COMPOSITION ON BONES.

Bones are the framework of the body. If I had no bones in me I should not have as much shape as I have now. If I had no bones in me I should not have so much motion, and grandmother would be glad, but I like to have the motion. Bones give me motion because they are something hard for motion to cling to. If I had no bones my brains, lungs, heart, and large blood vessels would be lying around in me and might get hurted, but now the bones get hurted, but not much unless it is a hard hit. If my bones were burned I should be brittle, because it would take the animal out of me. If I was soaked in an acid I should be limber. Teacher showed us a bone that had been soaked. I could bend it easily. I would rather be soaked than burned. Some of my bones don't grow close to my body, snug, like the branches of a tree, and I am glad they don't, for if they did I could not play leap-frog and other nice games I know. The reason why they don't grow that way is because they have joints. Joints is good things to have in bones. There are two kinds. The ball and socket, like my shoulder, is the best. Teacher showed it to me, only it was the thigh bone of an ox. One end was round, smooth, and whitish. That is the ball end. The other end was hollowed in deep. That is the socket, and it oils itself. It is the only machine that oils itself. Another joint is the hinge. Another joint is the hinge-joint, like my elbow. It swings back and forth, and oils itself. It never creaks like the schoolroom door. There is another joint that don't seem like a joint. That is in the skull. It don't have no motion. All my bones put together in their right places make a skeleton. If I leave any out, or put any in their wrong place, it aren't no skeleton. Cripples and deformed people don't have no skeleton. Some animals have their skeleton on their outside. I am glad I ain't them animals, for my skeleton like it is on the chart would not look well on the outside.

AIR SHIPS.

THE MOUNT CARMEL AERONAUTIC NAVIGATION COMPANY.

The plant of the Mount Carmel Aeronautic Navigation Company is situated at Mount Carmel, Ill. The main building is shaped after the pattern of a Maltese cross, the crosses being 600 feet in length by 60 feet wide. There are at present employed at the works a large force of mechanics working on the different parts of the aluminum air ship. There can be seen in different stages of completion the numerous patterns from which the aluminum is shaped; large and small forms of propellers lie scattered in seeming confusion, while adjacent is seen the numerous testing appurtenances for speeding the propellers and testing the strength of the tubes and sheets. Another department is used for the construction of the buoyancy chamber, the sheets of which are now being rolled and tempered from the ingot. In another department is placed the gas generating tanks, from which pure hydrogen is supplied to a reservoir which will be used in the aluminum ship when completed. A 100-horse power engine supplies the main shop with power, while a 30-horse power does the service for the foundry, blowers and crane. A 40-horse power engine drives the electric generators. The heating and ventilating apparatus is driven by a 30-horse power engine, while the hydrogen generators are supplied with a specially designed engine and boiler of 25-horse power. There is adjoining the main building, in course of erection, a station for the air ship, whence it will issue to make its trips; this building is 300 feet in length by 80 feet high by 75 feet wide. The capacity of the ship will be 50 passengers, and will be able to make a trip from New York to London in 15 hours. The machine is constructed of aluminum, with the exception of the glass which forms the windows in the passenger coach. The large cigar-shaped form which shows prominently is the buoyancy chamber; this chamber is composed of double thickness of sheet aluminum, a space intervening between the outer and inner sheets which is filled with hydrogen gas. The interior of the chamber is divided into various smaller compartments, the whole chamber being braced with hollow aluminum tubes from its center to its outer surface. In the centre of the chamber and extending its full length is a hollow shaft, which forms a part of the chamber and from which radiate the partitions and tubes which divide the compartments; these compartments and tubes being charged with hydrogen gas. A space in the forward end of the chamber is used as an engine room; this is divided from the compartments by a wall partition. The large propeller at the front of the ship has four hollow blades filled with hydrogen gas. The propeller is keyed direct to the main shaft of the engine, which is hollow and is left open at each end, the air passing through it to the cylinders of the engine which keeps them cool. This propeller is larger in diameter than the buoyancy chamber is at its centre. If the buoyancy chamber is 40 feet at its largest diameter, the propeller would be made 42 feet in diameter. This is done so that the currents of air which are taken in front of the propeller are discharged at its outer diameter and deflected aft of the center of the ship, which has the tendency to wedge the ship forward in the direction it is traveling, at the same time allowing the forward end to come in contact with little or no resistance. The top fin, or keel, which extends the full length of the chamber, is made of two thicknesses of sheet aluminum, the intervening space being filled with hydrogen gas. This fin acts similar to a weather vane. When the engine is stopped and the large propeller ceases to revolve, the shape and construction of the vessel are such that when adverse currents and side winds strike it they are deflected from its centre, which brings the ship's head to the wind; it is used as a keel on the same principle that a keel is used on a boat, to give the machine steerage. There are two aeroplanes at either side of the vessel; they are made of two thicknesses of sheet aluminum, the same as the top fin. There are two propellers of small diameter on each plane corresponding with one another; they are placed in a horizontal position, and when in operation will cause the ship to be raised or lowered, as desired, being reversible. They are operated by gas engines, which are attached direct to the shafts. The vertical rudder at the rear of the ship guides it either to the right or left, and the horizontal or altitude rudder, which is directly underneath the vertical rudder, is used to raise or lower the ship while in motion. The vertical rudder is operated automatically by means of a compass in connection with an electrical appliance. On the tiller of the rudder is attached an electric motor, controlled by the compass and operated by storage batteries. The compass is provided with four posts, in which are placed brushes, set so as to clear the pedestal which supports the needle. When the ship deviates the slightest from its course, either to the right or left, it causes the needle to revolve, thereby bringing the brushes in contact with the pedestal and causing the motor attached to the tiller of the rudder to revolve enough to bring the ship back to its former position, which, at the same time, rights the needle and breaks the circuit to electric motor. The altitude of the ship is governed by a barometer in connection with an electrical appliance similar to which operates the horizontal rudder, which allows the ship to conform to the curvature of the earth and to maintain a given altitude while in motion. The passenger coach is made of two thicknesses of sheet aluminum, the intervening spaces being filled with hydrogen gas. The seats and other car furniture are made hollow and filled with gas, as are also the cushions. The operator sits in the interior of the car, at the lower end, and has in view the compass and various switches and other appliances with which he controls the ship. The lighting, heating and ventilating of the car is done by electrical appliances. A space is left between the ceiling of the car and the buoyancy chamber, in which is stored the gas that is used to drive the engines, and underneath the car is placed the storage batteries. The motive power that drives the propellers is furnished by four cylinder gas engines, that will develop one horse-power for every two and a half pounds of their weight. The fuel that is used on these engines can be either coal gas or hydrogen gas, and is fed direct to the cylinders, being mixed with sufficient atmosphere to make it explosive, and is ignited in the cylinders by an electric spark. When the machine is ready to start, the passengers take their seats in the coach. The ship is always headed to the wind when landed. If the wind should be blowing 10 miles an hour, the large front propeller is controlled to offset same; the side propellers are then started, having little or nothing to lift. Only a small percentage of power is necessary to raise the machine. When an altitude is obtained sufficient to clear the trees and buildings in the course of the machine, the side or small propeller is stopped. The pilot looks at his chart and sets his compass according to his chart for the desired point; the machine now being handled by its automatic appliances goes direct to its destination, and upon reaching the same, the large propellers are again stopped. As soon as the machine has attained a speed less than that of the wind, it again points automatically to the current; should it be 15 miles an hour, the large propellers are again started to offset the head current, the side propellers are brought into play, and the machine gradually descends to its landing.

LYNCH LAW.

ITS ORIGIN AND ITS FIRST INSTRUMENT.

On the lawn of the most charming home in South Virginia in a beautiful valley of Campbell county, stands the old walnut tree on which lynch law was first administered. "Avoca" is the name bestowed on the old Lynch place, in memory of Tom Moore's "Avoca," by a granddaughter of Colonel Charles Lynch of the Revolution. "It is not generally known that the original lynch law never sentenced an offender to death, but only to be whipped. The term has been ascribed to more than one source. Modern dictionaries and some of the encyclopædias have treated it as worthy of notice. Webster, Worcester, and other lexicographers ascribe the origin of lynch law to a Virginia farmer named Lynch, and the traditions and records of the Lynch family agree with the more formal references found in historical works. There is no room to doubt that the term now become a part of the English language and accepted of all men, was derived from that fearless and honored soldier of the Revolution, Col. Charles Lynch, whose sword hangs on the wall of the lofty hall at Avoca. But that Colonel Lynch should be reputed the father of lynch law in the modern acceptation of the term is quite another matter, and would be utterly unjust to him. In the year 1780, when the fortunes of the patriots were at low ebb, the Scotch settlers and Tories of Piedmont, Virginia, conspired to crush the 'rebellion.' Their efforts were thwarted by the courage, vigilance and energy of Col. Charles Lynch, Capt. Robert Adams, and Capt. Thomas Calloway, aided by Col. William Preston, all Virginians of wealth and influence. Colonel Lynch, being chief magistrate, had the powers of a judge. He was a man of striking individuality, and vividly impressed the popular imagination. So eminently a leader that he naturally and easily took his place at the head of the Whig party in his section of the country. These gentlemen, ardent patriots, kept a sharp watch upon the loyalists, and when one was discovered playing into the hands of the enemies of Washington, he was seized, taken to the residence of Colonel Lynch, examined by a court composed of the gentlemen above named and others, and, if found guilty, tied to the walnut tree, given thirty-nine lashes, and made to shout 'Liberty forever!' After this he was set free, with words of counsel and admonition that left him a wiser if not a better man. One of the Tories arrested was found to have papers of importance to the loyalists concealed in a hollow of a square bedpost. He received the usual castigation, was given a house to reside in on the premises and forbidden to leave them on pain of severe punishment. These orders he strictly obeyed. The refrain of a popular song of that section was:

> Hurrah for Colonel Lynch,
> Captain Bob and Calloway!
> They never let a Tory off
> Until he shouts for liberty.

"The manner of procedure cannot be said to be lawless and unauthorized, and was considered by most people amply justified by the disturbed condition of the country resulting from the repudiation of allegiance to the English Government. The prisoner was brought face to face with his accusers, heard the testimoney against him, and was permitted to call witnesses and be heard in his own defense. If acquitted he was let go, often with apologies and reparation. If found guilty, he was punished as before stated and made to recant his disloyalty. After the Revolution the Legislature of Virginia found it necessary to protect these gentlemen, by special enactment, from the civil suits brought against them for taking the law into their own hands. [See Hanning's Statutes-at-Large, Vol. XI, pp. 134-5.] In later times the mild sentence of thirty-nine stripes gave place to the sentence of death, and many lives have thus closed without ceremony, but no one ever came to his death at the hands of the gallant Colonel Lynch except on the battlefield. No ghastly body ever dangled from the bare old tree that has battled with the storms of one hundred and fifty years."

* * *

The man who wants to get something for nothing is watching for another man on the same track; when they meet, the confidence game is the result of it. Keep out of it.

The best time to pass mutilated silver coin is to pass it when it is offered to you.

The dude never takes an enemy into his mouth to steal his brains. He knows better.

A CHAPTER ON LIES.

RABBI SOLOMON SCHINDLER GIVES SOME INTERESTING FACTS.

The difference between a purpose and motive in fiction. A unique new work which treats of lying in a very unconventional manner.

Rabbi Solomon Schindler, the brilliant Boston scholar, has contributed a most interesting paper to a recent issue of the *Arena* on lying, in which he takes the new realistic story, "Who Lies," as a text. By special permission, we are enabled to publish this notable paper.

It may appear tautological to speak of the "purpose" and the "motive" of a literary work in one breath; still there is a slight distinction between the two, and this distinction separates the former idealistic school of novel writers from the modern realistic school. It would be unjust to say that writers like Sir Walter Scott, Eugene Sue, Alexander Dumas, Berthold Auerbach, and others have lacked a "purpose" when writing their admirable novels; yet that "motive," that tendency, is indeed wanting in them which characterizes the works of realistic authors. Charles Dickens, who may be termed the connecting link between these two schools—the novelist of the transition period—adds a distinct "motive" to the "purpose" when he attacks the miserable school system of his time, or the inhumanity with which the submerged classes are treated, or when he ridicules the hypocrisy of charitable institutions. Step by step we can thus trace the evolution of the "motive" in the progress of the realistic literature of our time.

The latest contribution of this character in fiction, embodying a strong "motive," has been presented to the reading public through the *Arena* Publishing Company of Boston, in their fifty-cent series of vigorous works by leading thinkers. The authors, Emil Blum, Ph. D , and Mr. Sigmund B. Alexander, have correctly called it an "Interrogation." They desire to call attention to one of the most serious problems of life; they hurl an accusation at our modern civilization, against which a defence is not an easy task; they cast a flash light upon society, and show the rotten foundation upon which it rests.

Eight gentlemen, belonging to the cultured and well-to-do classes of society, and representing various walks of life, are assembled at a banquet. They are all graduates of the same college, in which they had been nicknamed by their classmates the "Model Nine." Their friendship had existed during ten years, in which time each of them had won for himself a respected position in society. One is a successful physician; another a famous lawyer; the third stands at the head of a lucrative business concern; the fourth is the chief of a banking-house, and known as a great philanthropist; the fifth occupies the pulpit of a fashionable church; the sixth edits a newspaper of large circulation; the seventh holds a professor's chair at the Alma Mater; the eighth is identified with the politics of his State; the ninth, the most promising of them, had inherited from his father an immense fortune, and had during these years travelled extensively. He had, therefore, never been present at any of their annual reunions, but is expected to join them on this occasion. A belated train brings him to the city and into their company, at the moment when they are drinking the health and praising the noble qualities of the absentee.

He is warmly greeted by his friends, who, however, find that he has changed considerably. Though apparently the same genial and brilliant fellow whom they had known in times past, he seems to have become infected with the blackest kind of pessimism. He fiercely attacks the very civilization which they cherish so dearly. A controversy arises, which culminates in a peculiar wager. Rust, the pessimist, claims that our whole civilization is a huge "Lie;" that this "Lie" has permeated and poisoned society to such a degree that no one could speak the truth, even if he desired, for any length of time, without harming, if not destroying, his reputation and business prospect. This is emphatically denied by his friends, who, on their part, claim that for one week, at least, they would pledge themselves to adhere strictly to the truth. The wager provides, therefore, that if they adhere to the truth for one week, Rust must pay eight thousand dollars; but if one of them breaks his word, he must pay one thousand dollars. The money is to go to some benevolent institution, which the winner shall designate. It is further agreed that any member may withdraw his obligation on payment of one thousand dollars during the week, if he finds telling the truth too expensive.

The result was as predicted by Rust. Disaster in some form overtook each of them. In the last chapter, Rust informs them that he had offered the wager, not to win their money, but to give them an object lesson. All the miseries from which society is suffering, says he, are the logical consequences of the prevailing untruthfulness. Instead of trying to remodel the world, and to better conditions by assailing consequences, they ought to attack the root of the evil, the "Lie." He proposes, therefore, the formation of a society of veritists—of men who will pledge themselves to speak the truth always, unmindful of possible consequences. It is his firm belief that, in the end, people will learn that they prosper much better with truth than with untruth, and that while for a short time they may be the losers, in the end they will win confidence and make up for the loss.

The lightning which illumines the path of the wanderer on a stormy night, shows him the precipice into which he is about to fall; thus "Who Lies?" reveals the dangers with which our present civilization is fraught, and the root from which most of its evils grow. It suggests the only remedy: namely, to speak the truth and nothing but the truth, regardless of consequences.

"Who Lies?" will be found not only amusing and interesting, but the reader will admire it for its courage and fearfulness. It is deserving of a wide circle of readers.

POSSIBILITIES OF SCIENCE.

NATURE'S IMMEASURABLE UNUSED FORCE.

On Wednesday, the 3d of February, the Royal Institution was crowded with one of the most critical scientific audiences in the world, who were held spell-bound for more than two hours while Mr. Tesla gave an account of his discoveries. Mr. Tesla is a young electrician, born at Rieka, on the border of Montenegro, and now domiciled in America. The interest of the lecture lay, not in the beautiful experiments with which it was illustrated, nor in the actual facts put forward, but in the hope which it held out that we may now draw back a little further the veil which hides one of the most fascinating mysteries of nature, namely, the relations between light and electricity, and between matter and motion. The tendency of modern science is to remove day by day the barriers between its different branches. Our views of the phenomena of light and heat, of electricity and magnetism, and even of matter and motion, are rapidly merging into one general theory of molecular physics, which is perhaps best expressed by the vortex theory of Sir William Thomson. According to this theory the whole of every part of space is filled with a fluid called ether, almost infinitely thin, and almost infinitely elastic. The historic experiments of Faraday, interpreted by the mathematical researches of Clerk Maxwell, have demonstrated almost beyond doubt that the same ether whose waves carry light and heat from the sun and stars to the earth, also carries the waves of electric and magnetic induction which follow each outburst of solar activity. Sir William Thomson holds that all that which we know as matter consists of vortices or whirlpools of this ether which, from their rapid rotating motion, resist displacement, and therefore show the common properties of hardness and strength in the same way as a spinning top or gyroscope tends to keep its axis in a fixed direction. But whether the molecules or particles of what we know as matter are independent matter, or whether they are ether whirlpools, we know that they keep up an incessant hammering, one on another, and thus on everything in space. Professor Crookes has shown that the forces contained in this bombardment are immensely greater than any forces we have yet handled—many millions of horse power being contained in an ordinary room. Owing, however, to the forces being in every possible direction, they neutralize each other, and no result of them is perceivable to our senses; but if we ever discover how to so direct their courses as to send the majority of them in the same direction, we shall have at our disposal forces as much exceeding any we are now acquainted with as the blow struck by a bullet exceeds the force required to pull the trigger of a gun. In fact, as Mr. Tesla put it in his lecture, "We shall then hook our machinery onto the machinery of Nature." It is because they hold out to us a hope, however distant, of some day so guiding the ether storm that the experiments of Nicola Tesla are of such transcendent interest and importance. Professor Crookes, in his experiments on "radiant matter," has given us the first hint of a method of directing what, for want of more exact knowledge, we will call the molecules of matter. With the appliances at his command, however, he was unable to impart any great change of direction, but he succeeded in making that change manifest by reducing the disturbing forces acting against his directing force. In other words, he pumped out from glass bulbs and tubes nearly all the air or other gas that they contained, and the comparatively few particles left were then free to travel in any course imparted to them without much change caused by collision with others. This special direction was imparted by means of electricity, and gave us the beautiful phenomena of phosphorescence and radiant matter which are now so well known in these experiments. By means of suitably shaped terminals a stream of molecules is focussed on a given point. If a piece of carbon or platinum is placed at that point it becomes white hot under the bombardment from identically the same cause which induces a sheet of flame to appear when a cannon shot strikes an iron target. If a ruby or other phosphorescent material is placed there it glows with its characteristic color and if a little delicately balanced vane or windmill is placed so that the stream is directed on one side of its fans it rapidly revolves. The forces available in these experiments were, however, almost indefinitely small, being as it were merely flying spray from the great torrent into which we have not yet been able to penetrate. Now for the advances made by Tesla. In all the above experiments the electricity by which the directing force was imparted to the molecules was electricity of a comparatively slow alternation period, namely, electric currents oscillating about 80 to 100 times per second. It was as if we had tried to ventilate a room by causing a man to walk slowly through it with an umbrella. He would undoubtedly move the air, but would move it so slowly that ordinary methods would be insufficient to enable us to perceive its motion. In order to cause a rush of air we must put up a rapidly moving fan or other suitable machinery. Mr. Tesla, seeing this, abandoned the ordinary dynamo, which, as we have already noted, gives about 80 alternations per second, and the ordinary induction coil, which gives about the same number, and constructed a dynamo which gives 20,000 alternations per second. and by connecting this to suitable condensers he multiplied its alternations until they reached 1,000,000 or 1,500,000 per second—then at once an entire set of new phenomena appeared, and the experimenter entered a region of mystery and hope. One of the first things noticed was that, either because these vibrations are too rapid to excite corresponding vibrations in the nerves of the body, or from some other cause, no shock is felt from the current—and that though an ordinary current at 2,000 volts will kill, yet this current at 50,000 volts cannot be felt at all. It was also found that the vibrations keep time in some unknown way with the vibrations of solid matter. Vulcanite is one of the best insulators known, and will entirely stop any ordinary current or discharge, but the stream of sparks between two poles with this current pours through a thick sheet of vulcanite as easily or even with greater ease than through air. It does not perforate it in any way, but passes through it as light passes through glass. All the "Crookes" phenomena of radiant matter are almost indefinitely increased; it is the blow of mitrailleuse bullet compared to the blow of an air ball thrown against the wind. The forces can be directed for a considerable distance through space without the aid of wires. Electric lamps light easily when attached to one single wire, and require no return conductor; and, more wonderful still, if metal plates are fixed on the roof and walls of a room and connected to the terminals, the whole atmosphere of that room, whether it be ether, or whether it be particles of common matter, is thrown into a state of storm and agitation which can be at once made perceptible by bringing into the space, tubes or globes from which the air has been partially exhausted. Such tubes, though without any metallic connections, yet glow and throb as if powerful currents of electricity were being sent through them from an ordinary induction coil. A "Crookes" radiometer placed near a metal conductor from which neither spark nor glow is perceptible, yet rotates as if it were placed near a lamp or heated body, but rotates in the wrong direction, and a true flame burns in which nothing is consumed. When the discharge issues from a suitable terminal it has the appearance and roaring sound of a gas flame burning under too high a pressure, and gives off a considerable heat. To use Mr. Tesla's words again: "This is not unexpected, as all the force and heat in the universe is due to the falling together of lifted weights, and the same result is produced whether these weights have been lifted apart by chemical energy, and rest in the form of oxygen and hydrogen, ready to combine chemically, or in the form of energy of moving molecules directed by the electric current." Should the application of Mr. Tesla's results ever fulfil the bold dreams of scientific imagination, we shall see a social and political change at least as important as that caused by the railway system or the electric telegraph. Most manual labor will become unnecessary, as unlimited power will be available at every man's hand. Engineering works will be able to be carried out on a far greater scale than has yet been even contemplated, and doubtless a corresponding era of material prosperity will set in; but, whether these dreams are ever fulfilled or not, few who attended Mr. Tesla's lecture will forget the possibilities which seemed to open to their minds when they saw a living man standing in the midst of the electrical storm, receiving unharmed in his hands flashes of veritable lightning, and waving above his head a tube through which the very life-blood of creation pulsed in waves of purple fire.

J. E. H. Gordon.

NERVE VIBRATION VS. VITAL FORCE.

The magnitude of the prevalent evils of alcoholism and narcotism, as revealed by the reports of various "institutes" and "sanitariums" established for the treatment of those conditions, may well compel the interest and even awaken the alarm of the economist, the physicist and the moralist alike. Whether the alcohol and opium "habits" are cured in those institutions, or not, is not the question pertinent here, but simply the very serious fact that the vices they profess to control have gained such a hold upon our people. And they are not merely the ignorant and vulgar—those reared from demoralizing childhood in debasing environments or robbed by hard fate of even the right to aspiration in the struggle for existence—who fall victims to such malign influences, but the educated, brainy, well-to-do men who are rightly recognized by their fellows as leaders in professional, commercial and political life. Comparatively few of them, perhaps, permit themselves to be so far enslaved by their appetites as to make their degradation matter of popular knowledge, but very many, it is evident, cultivate with secret persistence habits which inevitably, in time, weaken their mental powers, sap their vital forces cloud their declining years, and hasten them to the tomb.

There must be some clearly ascertainable reason for such social tendency. It surely is not the same as that which prevailed in the days of our forefathers, when hard drinking was a virtue. Drunkenness is now, except among the lowest orders of society, correctly esteemed a vice and frowned upon. And the men whose alcoholization is most to be deplored are in fact the "steady drinkers who never get drunk." They seek a saturating sufficiency for purposes of excitation, not to flood the brain for the production of oblivion. And the same may be remarked of the victims of the drug habit, the consumers of morphine, chloral, cocaine, chloroform, sulfonal, opium, etc The provoking cause, in almost all cases, is to be found in the nervous strain induced by the competitions of life and business, which is kept up habitually beyond the power of the body to sustain it without the adventitious and inevitably injurious aid of some form of stimulant. Who has time to think of maintaining "a sound mind and a sound body" when the stock market is liable to advance, or recede, a point in the next hour; when cotton is up or down an eighth of a cent from yesterday's quotations; when real estate is booming in the tenth ward; when the Astorbilt garden party is coming off; when the jockies are weighing in for the great handicap, and a presidential campaign is pending. Yesterday belongs to ancient history, to-morrow may never be, we live in the eternal Now. He who stops to take care of himself in this general race to ruin will be trodden down and left behind. Is there, then, no recourse for us but resignation to the inevitable wearing out of our lives by this unnaturally high rate of nervous vibration, altogether out of harmony with those of which our bodies are normally capable? The only hope is in bringing the physical system up to the high condition adequate to endurance of such tension without injury. To effect this by healthful exercise, proper feeding, sufficient rest and mental quietude would be quite practicable, if time could be afforded to pursue such a course of training, but that is no easy matter with most of us. The alternative is in attainment of like results by such judicious medication as shall bring all the vital organs to their highest efficiency and keep them harmoniously operating in that condition. The digestive and assimilative functions, being the base of all, must be carefully conserved and strengthened; the eliminative and selective organs stimulated and toned to give a quality of blood that shall repair the constant and rapid waste of nervous force and animal tissue; and thus, and only thus, can the sound body needful for the sound mind be gained. The safest and best medicine to achieve this end is unquestionably Ayer's Sarsaparilla, which is as effective in increasing and confirming healthful conditions as in eliminating those of disease. It is no secretly compounded nostrum, but a scientific preparation of Honduras sarsaparilla, yellow dock, and other alteratives and tonics, the value of which is attested beyond controversy or cavil by the highest medical authorities. Made by a process which conserves the highly volatile elements of the drugs, in which their chief potencies exist, and from better materials than are employed by any other manufacturers of professedly alterative medicines, Ayer's Sarsaparilla is, beyond question of wider applicability to the peculiar requirements of the American people than any other medicine known.

◆

DEAFNESS CANNOT BE CURED

by local applications, as they cannot reach the diseased portion of the ear. There is only one way to cure Deafness, and that is by constitutional remedies. Deafness is caused by an inflamed condition of the mucous lining of the Eustachian Tube. When this tube gets inflamed you have a rumbling sound or imperfect hearing, and when it is entirely closed Deafness is the result, and unless the inflammation can be taken out and this tube restored to its normal condition, hearing will be destroyed forever; nine cases out of ten are caused by catarrh, which is nothing but a inflamed condition of the mucous surface.

We will give One Hundred Dollars for any case of Deafness (caused by catarrh) that cannot be cured by Hall's Catarrh Cure. Send for circulars, free.

F. J. CHENEY & CO., Toledo, O.

☞ Sold by Druggists, 75c.

BUFFALO LITHIA SPRINGS.—HOT SPRINGS.

TWIN REMEDIES IN

GOUT, RHEUMATIC GOUT AND RHEUMATISM.

WHAT THE HOT SPRINGS PHYSICIANS SAY:

Dr. Algernon S. Garnet, Surgeon (retired), U. S. Navy, Resident Physician, Hot Springs, Ark.:

"My experience in the use of BUFFALO LITHIA WATER is limited to the treatment of **Gout, Rheumatism** and that hybrid disease, **'Rheumatic Gout'** (so called), which is in contradistinction to the **Rheumatoid Arthritis of Garrod.**

"I have had *excellent results* from this Water in these affections, *both in my own person and in the treatment of patients for whom I have prescribed it.* Of course, the remedial agent is its contained **Alkalies** and their solvent properties.

"Hence it is a **prophylactic,** *as well as a* **remedy in Nephritic Colic,** *and forming* **Calculi** *when due to a redundancy of* **Lithic Acid."**

The Late Dr. Wm. F. Carrington, Resident Physician, Hot Springs, Ark., Surgeon (retired), U.S. Navy, Surgeon Confederate States Navy:

"BUFFALO LITHIA WATER, Spring No. 2, has signally demonstrated its remedial power in **Gout, Rheumatic Gout, Rheumatism, Uric Acid, Gravel** and other maladies dependent upon the **Uric Acid Diathesis.**

"*It not only eliminates from the blood the deleterious agent before it crystallizes, but* **dissolves** *it in the form of* **Calculi,** *at least to a size that renders its passage along the ureters and urethra comparatively easy."*

Dr. T. B. Buchanan, Resident Physician, Hot Springs, Ark.:

"*Send me five cases* BUFFALO LITHIA WATER, Spring No. 2. I have made use of this Water for **Gout** *in my own person and prescribed it for patients similarly suffering, with the most decided beneficial results. I take pleasure in advising* **gouty** *patients to these Springs."*

Dr. G. W. Lawrence, Resident Physician, Hot Springs, Ark.:

"I prescribe BUFFALO LITHIA WATER with great confidence, in all diseases of **Uric Acid Diathesis.** When traveling, it is my habit to use this Water as a guarantee for getting a pure water."

Dr. L. S. Ordway, Resident Physician, Hot Springs, Ark.:

"I have used BUFFALO LITHIA WATER Spring No. 2, very extensively and successfully in my practice, in cases of *Rheumatism of the Arthritic* form, especially when complicated with weak, inactive *Kidneys, with inclination to Bright's Disease.* I have also found it an efficient remedy in *Albuminuria of pregnancy."*

DR. JOHN A. BLAYDES, Pres. HOT SPRINGS MEDICAL AND SURGICAL INSTITUTE, ARKANSAS. DR. R. O. BLAYDES, Sec'y.

THE STATEMENT OF DR. BLAYDES:

"We have made use of BUFFALO LITHIA WATER with patients of this institution in many obstinate cases of Gout, Rheumatic Gout and Rheumatism, with uniformly excellent results, and in diseases generally of Uric Acid Diathesis regard it as an invaluable remedy. Its action in this class of cases indicates certainly the possession of some extraordinary property."

WATER IN CASES OF ONE DOZEN HALF-GALLON BOTTLES, $5, F. O. B. HERE.

☞ *Descriptive Pamphlets Sent Free.* ☜

THOMAS F. GOODE, - - - Buffalo Lithia Springs, Va.

BUSINESS NOTES.

HORSFORD'S ACID PHOSPHATE.

If you are Nervous, and cannot sleep, try it.

Dr. Chas. S. H. Davis, Meriden, Conn, says: "I have used it as an accessory in cases of melancholia and nervous debility, and as a pleasant and cooling drink in fevers, and have been very much pleased with it"

SALAD OIL.

Among the best olive oils imported here are those of the Societé Hygienique Alimentaire, whose office is at No. 1 Water street, New York. They are very light-bodied, and for this reason are much preferred by many American consumers who are gradually acquiring a taste for olive oils.

THE LINE OF LAKES.

The above name has been applied to the Wisconsin Central Lines, on account of the large number of lakes and summer resorts tributary to its lines. Among some of the well-known summer resorts are Fox Lake, Ill., Lake Villa, Ill., Waukesha, Mukwonago, Cedar Lake, Neenah, Waupaca, Fifield, Butternut and Ashland, Wis. These lakes abound in numerous species of fish, such as black bass, rock bass, pickerel, pike, perch, muskallonge, while sportsmen will find an abundance of game, such as duck, geese, quail, snipe, etc. In the grandeur of her scenery, the charming beauty of her rustic landscapes and the rare perfection of her summer climate, the State of Wisconsin is acknowledged to be without a peer in the Union. Her fame as a refreshing retreat for the overheated, careworn inhabitants of the great cities during the midsummer months, has extended as far southward as the Gulf of Mexico and eastward to the Atlantic.

Pamphlets giving valuable information can be obtained free upon application to G. R. Fitch, G. E. A., New York, N. Y., or Jas. C. Pond, General Passenger and Ticket Agent, Chicago, Ill.

He who waits for all things to come to him, under the impression that all things come to him who waits, will get fooled. Success seldom stops to tip the waiter.

Exhaustion

HORSFORD'S ACID PHOSPHATE.

A most wonderful remedy, of the highest value in mental and nervous exhaustion.

Overworked men and women, the nervous, weak and debilitated, will find in the Acid Phosphate a most agreeable, grateful and harmless stimulant, giving renewed strength and vigor to the entire system.

Dr. Edwin F. Vose, Portland, Me., says:

"I have used it in my own case when suffering from nervous exhaustion, with gratifying results. I have prescribed it for many of the various forms of nervous debility, and it has never failed to do good."

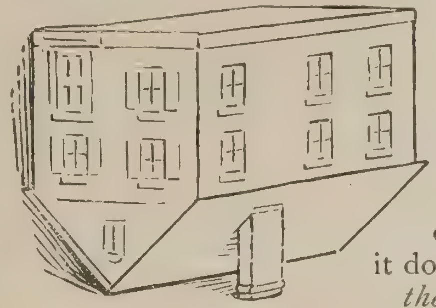
Descriptive pamphlet free.

RUMFORD CHEMICAL WORKS, Providence, R. I.

IMITATIONS.

CAUTION: Be sure the word "Horsford's" is on the label. All others are spurious. Never sold in bulk.

"Turned Upside Down"



Is your home in this sad plight—many are and house-cleaning does it. Cold meals and no comfort, sour tempers and aching backs, hard work and too much of it, tired women and "mad" men—all from house-cleaning. And it's all needless. Don't make such a fuss over it. Take a little *Pearline*, and have it done easily, quickly and quietly. You'll have it done better, too—*you won't have to rub the paint off to get the dirt off.* You can save half your labor and half your time, if you'll clean house with *Pearline*—and everybody in the house will be thankful for it. Millions use nothing but *Pearline* for washing and cleaning

Turn the Key On the peddlers and grocers who tell you "this is as good as," or "the same as" Pearline. IT'S FALSE; besides Pearline is never peddled.

307 JAMES PYLE, New York.

BOOK REVIEWS.

Warner's Therapeutic Reference Book. Philadelphia: William R. Warner & Co., 1892. Free to physicians on application.

This little book, which has reached its fourth year of publication, is of a convenient pocket size and contains much matter of value to the practicing physician. We find articles such as aid in memorizing doses, treatment of asphyxia, time of incubation of eruptive fevers, digestibility of foods, pharmaceutical formulæ, medical formulary, periods of gestation, hypodermic medication, incompatibles, parvules, pills, poisons and antidotes, posogoloical table, prescription writing and weights and measures.

Boyd's Copartnership and Residence Business Directory of Philadelphia for 1892. Boyd's directory office, 234 South Eighth street, Philadelphia.

This very practical book is gotten up with unusual care, and is invaluable to any one desiring to address the business men of Philadelphia.

Why Is It That—Bees never store up honey where it is light?

The moth has a fur jacket and the butterfly none?

Leaves will attract dew when boards, sticks and stones will not?

A horse always gets up foreparts first and a cow directly the opposite?

Corn on the ear is never found with an uneven number of rows?

Fish, flies and caterpillars may be frozen solid and still retain life?

A squirrel comes down a tree head first and a cat tail first?

Electricity is never visible except when it comes in the form of zig-zag lightning?

A horsefly will live for hours after the head has been pinched off?

The dragon-fly can devour its own body and the head still live?

Some flies thrust their eggs into the bodies of caterpillars, but always in such parts of the body that when the larvæ are feeding on the flesh of the foster parent they will not eat into any vital part? Can this be explained? Does the fly reason?

Not What He Wanted.—"Good morning, Mr. Solomon! I see you have two good salesmans on the road."

"I have gott no salesmans on de roat. I have gott two termometers. One writes me from down Soud, and says: 'It is too hot to sell the goods.' De otter writes from the Nordwest, and says: 'It is too cold to sell dem goods.' I write back to dem: 'Hereafter I vill consult the wedder bureau.'"—*American Grocer.*

Thread is a simple thing, but, simple as it is, there are 2,000 kinds, and each kind goes through hundreds of different processes.

Fine Table Wines

From our Celebrated Orleans Vineyard.

Arpad Haraszthy & Co.

Producers of the

ECLIPSE CHAMPAGNE,

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SAN FRANCISCO.

GROWERS OF

Chateau d'Orleans, the highest grade Claret made in America.

Cabernet Blend, the richest and finest of Table Clarets.

O V Chablis, possessed of all the delicate pungency of its French counterpart.

O V Sauterne, with the exact character and *Seve* of imported Sauternes.

The **Chateau d'Orleans** and **O V Chablis** are sold in glass only.

DYSPEPSIA FLOUR.

Also Special Diabetic Flour and Barley Crystals.

UNRIVALED IN AMERICA OR EUROPE.

Circulars and Baking samples Free.

Write Farwell & Rhines, Watertown, N.Y., U.S.A.

"Eat BEECHNUT Hams and Bacon."

Artificial Ivory.—An artificial ivory of creamy whiteness and great hardness is now made from good potatoes washed in diluted sulphuric acid, then boiled in the same solution until they become solid and dense; they are finally washed free from the acid and slowly dried, and may be dyed, turned, and made useful in many ways.

◆

The Queen's Robes.—What a curious day might be spent in rummaging in the great cabinets at Windsor Castle, where are stored away all the gowns that the Queen ever wore! For her Majesty's robes are never sold or given away, despite the energetic attempts which have been made to induce the attendants to part with some of those hundreds of gowns which their wearer has probably forgotten that she ever possessed. The Coronation robes, bridal gowns, resplendent garments of stately fête and royal ceremonial worn in the old days, before the magnificence of queenliness was forgotten in the sorrow of widowhood—what will become of these relics when the long reign comes to an end, and the enormous cabinets are made ready for the new queen's arrival.

◆

Aluminum as a Source of Light.—A new use for the "metal of the future" has been pointed out by the French chemist, Dillon. Aluminum in the form of ribbons or powder, burns with a flame almost as brilliant as that of magnesium. It is said to be now employed by photographers with the best results for obtaining "flash lights," a mixture of the powdered metal with a small proportion of lycopodium and ammonium nitrate being used.

◆

Why is it easy to break into an old man's house? Because his locks are few and his gait is broken.

It takes about three seconds for a message to go from one end of the Atlantic cable to the other—about 700 miles a second.

◆

Ripans Tabules: a family remedy.

A Magnificent Microscope has just been completed at Munich for the Chicago Exposition, at a cost of $8,750. It possesses a magnifying power of 11,000 diameters, which with the oil immersion can be increased to 16,000. Electricity furnishes and regulates the source of light, which, placed in the focus of a parabolic aluminum reflector, reaches an intensity of 11,000 candle power.—*Medical Visitor.*

◆

The fashionable point for grasping sticks and umbrellas in London is about six inches from the ferrule, the handles being allowed to dangle downward.

Printing was introduced into Chili in the year 1812 with a little screw press brought from the United States, which is still preserved in the National Museum.

The streets of Caracas, the capital of Venezuela, are so narrow that the street cars that were imported had to be sawed in two in order to allow them to turn the corners.

Illuminated walking sticks are among the latest applications of electricity. A small incandescent lamp is concealed in the head of a cane and can be ignited by a spring.

A morsel of raw ham, eaten by Anna Hehenforst, aged nineteen, of Hoboken, N. J., brought on a fatal case of trichinosis. The same ham was afterwards cooked and eaten by other members of the family, none of whom were injured thereby. All this proves that it is perilous to eat uncooked ham.

◆

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Brewed & Bottled
Specially for
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IVORY PEARL TOOTH POWDER
KEEPS TEETH PERFECT AND GUMS HEALTHY
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RECULATE THE
STOMACH, LIVER AND BOWELS,
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PURIFY THE BLOOD.
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IS SIMPLY THE PULP OF THE RIPE PEPPER EXTRACTED BY PRESSURE.

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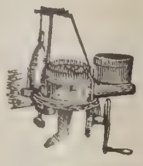

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Sold everywhere. Cleans everything.
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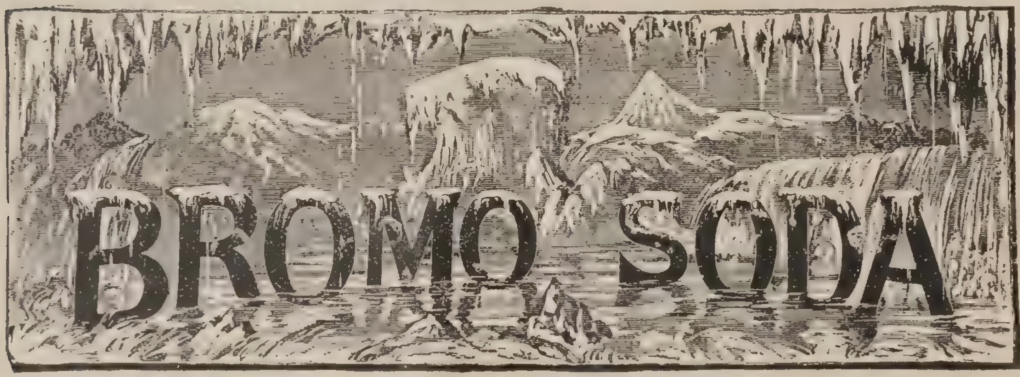

Useful in Nervous Headache, Sleeplessness, Excessive Study, Over Brainwork, Nervous Debility, Mania, etc.

DOSE.—A heaping teaspoonful in half a glass of water, to be repeated once after an interval of thirty minutes, if necessary. Each teaspoonful contains 30 grs. Bromide Sodium and 1 gr. Caffein.

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The Great German Remedy for the Cure of Liver, Stomach and Nerve Diseases, such as Biliousness, Jaundice, Fever and Ague, Chills, Fevers and Malaria in its various types. It cures Constipation and Headache and all forms of Nervous Prostration and Weakness, and is an

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Pleasant to take, quick and efficacious in action. 50 cents per box, by mail, to any address.

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The Standard of Excellence.

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SILVERGLOSS STARCH
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KINGSFORD'S
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FOR
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THE PERFECTION OF QUALITY.
WILL PLEASE YOU EVERY TIME.
Always ask your Grocer for these goods.

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JULY 15, 1892.

CONTENTS.

Page
Adulteration 240
Adulteration of Food and Drugs 242
Bread 242
Catarrh of the Upper Air Passages 238
Cocoas and Chocolates 241
Coloring and Adulteration of Confectionery 241
Comparative Pathology of the Caucasian and Negro 239
Editorial 237
Curing Disease Without Medicine—Candy Shop Organ—Thanks for Good Opinion—The Lawyer and the Demagogue.
Honey and Its Adulterations 240
Household 242
Hygienic 239
Hygienic Clothing 239
Medical 238
Nutritive Value of Various Foods 242
Poisoning from Artificial Teeth Plates 239
Warning Against Kissing Animals 240
Wise Sayings Well Said 243

CURING DISEASE WITHOUT MEDICINE.

The newspapers frequently tell us of people who, having suffered from various ills that human flesh is heir to, after vainly trying all kinds of doctors, the long list of proprietary medicines, were cured apparently without the use of any known remedial agent. These cases generally comprise many specimens of what are generally considered incurables. In some of the so-called cures by faith curists, Christian scientists, and holy relics, we are told that the lame and paralytic are made to walk, the blind to see, the deaf to hear. It would be useless to say that all these reports are false, because there is strong evidence that there have been known cases where people limped on crutches to these places and walked away after a very few minutes. One medical contemporary commenting on the cases reported as having been cured by a Catholic clergyman in Pittsburgh, claims that the great majority who go to him for a cure are disappointed. Granting this to be true, how is the cure of the minority to be accounted for? It will not do to say that all these are dupes, that they are deceived, for when a man who has been unable to move for years can be made to walk, it is evident something has happened. The best of reasons, "whereas I was blind, now I see," cannot be disproven. Neither will it do to explain all by crediting supernatural intervention, for the age of miracle is not now in force, and indeed the periods of miracles in scriptural times even were few and far between. Some other and logical explanation must be given. A rational explanation of these so called cures may, we think, be found in the power of the emotions, of the will, of the spirit, if you please, over the flesh; of life over the beginnings of disease, and even over disease and death itself. The *Popular Medical Monthly* strikes the key-note when it says:

"Races and nations differ greatly in their power of resisting and overcoming disease simply by reason of the characteristic attitude of the will and the disposition of the patient toward the physical illness. Just so do all, even brothers, differ in the same way. Thousands are physically sick, because mental resolution and spiritual domination is weak and illogical. This is strikingly true in reference to the beginnings of disease. The secret of continuous good health does not always consist merely in physical resistance or robustness, but in sharply conquering the subtle beginnings of corporeal abnormality by pure will-power.

"There are two homologues of this power that illustrate it exactly. Who has not seen whimsicality, crankiness, and oddity, by self-indulgence, slowly degenerate into monomania, and even into downright insanity? And, again, who can doubt that in the commencement many such persons are perfectly conscious of the abnormal tendency, and are, moreover, perfectly capable of *not* doing the ridiculous or self-forgetful things. They are at first driven by no imperious necessity. It is precisely so when one gives way to immoral courses of life At first the voice of conscience is clear; by and by control is lost, and the voice is entirely silent. The analogies obtain in the matter of health. The adage, "Resist the beginnings of evil," holds also here. All disease begins subtly, almost insensibly, as chill, lassitude, malaise, etc. Caught at this stage and fought down by a virile volition, that which, by self-indulgence would have proceeded to genuine fever and illness, may often be resolved into routine normality of health. A brisk walk of five miles in the teeth of exhaustion and weariness has saved many from severe illness. And so in types of disease that are, if one may so speak, more organic. The fact cannot be disputed that many who have believed themselves incapable of walking, under powerful emotion, their own will being supplemented and "relayed" by that of another, do really find that they can walk a little. Our confutation of the priest's supernaturalism consists precisely in this proved power of the will. Doubtless, orthopædic appliances are often given patients who need only resolution, encouragement, and repeated trial in order to develop by exercise the strength that the crutch really conceals or neutralizes. In the sick-room every experienced practitioner knows how much depends upon the *morale*, the resolution of the patient, and how even death and life may depend upon the will.

"All this, when we read it, seems trite enough, but its significance is lost sight of in the battle of rival theories of disease, and to some it must seem the froth of nonsense. But the practical lesson of the very obvious truth consists in the simple duty of arousing the will to self-confidence and corporeal denomination. As has been well demonstrated, the best cure for the most outrageous hysteria is mental and volitional control—supplanting the patient's diseased imagination by a healthy one—true faith-cure in a legitimate and genuine sense. The puppets of fashionable automatism are prone to run to the doctor for every ache, real or suspected. To indulge them in their folly sometimes seems to the physician not without a certain worldly excuse. But, if a higher ethical ruling is adhered to, duty will counsel encouragement of prophylaxis and hygiene; and among the means of forefending disease an energetic domination of will over the body is often the most vital and important."

THE CANDY-SHOP ORGAN.

In Philadelphia there is published an advertising sheet for candy-makers called the *Confectioners' Journal.* It is very neatly gotten up, typographically, as a collection of candy-makers' hand-bills stretched together with a choice collection of mutual admiration notices, and being quite a bulky affair, no doubt pays the proprietors handsomely. It is a trade paper pure and simple, and therefore we must thus describe it that our readers who are not candy-makers may learn of the existence of such a sheet. The managers of this sheet feeling the weight of the candy-makers' money in their pockets and the convention yoke on their neck have felt it necessary to undertake the defense of the aforesaid candy-makers against what it terms spleen on the part of an "obscure" sheet, meaning by that the AMERICAN ANALYST. Before proceeding to answer for our supposed sins we wish to plead guilty to the accusation of being an obscure sheet to the candy-makers and their organ. If these people would study our columns more they would save themselves from a great many needless blunders and would hesitate before they compel us in defense of our position to expose their vile doings still more than we have already done. Yes, we are an obscure sheet to taffy-makers, but to the community, to the public on whom the candy-makers depend to buy their goods, we are well-known and not nearly so obscure as the candy-makers would wish we were before we get through with them. We have our circulation among the intelligent classes who have children whose health is precious to them; the AMERICAN ANALYST goes to the physicians of the land who depend upon us to keep them well informed as to the doings of all food manufacturers, and all our numerous readers have confidence enough in our sound judgment and fairness to be warned by what we deem it our duty to say. Now simply to justify what we have said, and to instruct our befogged confectioners' defender, we will call his attention to his own columns where on page 84 of his July issue, he will find a list of coloring matters found by the government analysts in the confectionery examined, nearly half of which are well known to be poisonous and many of them made of arsenic. This is all we have space for now—we submit it for his consideration.

THANKS FOR YOUR GOOD OPINION.

The *Elmira Daily Advertiser*, in its issue of June 23, does us the honor of speaking of the American Analyst as follows:

POISON IN OUR FOOD.

Among the unpardonable crimes against society that are not only glaringly and outrageously prevalent, but continue to flourish with but occasional interruptions by the strong arm of the law, the adulteration of food products in the lines of luxuries as well as necessaries of life, is the most flagrant.

The American Analyst, a semi-monthly magazine of excellent merit, published in New York, is devoted to the task of detecting, exposing and condemning food adulterations and their adulterators. The editor, Dr. H. Lassing, a chemist of international graduation and established professional eminence, and a veteran journalist of exceptional versatility, has performed invaluable service to the community in detecting, exposing and checking the direful evils of food poisoning—for such is the exact definition of the results of food adulterants. The Analyst's most recent crusade has been directed against the candy makers, whose vile products are the indirect cause of a great deal of sickness and suffering among children.

The *Portland Transcript* of June 22, says:

The American Analyst, published in New York, is doing splendid work in keeping consumers and middlemen informed as to the purity and freedom from adulteration of the principal articles of food and medicine. Families, as well as grocers and druggists (and even more than they), are interested in this matter.

The *Southern Christian Advocate*, New Orleans, says:

The American Analyst of New York, the only pure food advocate published, is welcomed to our table. The field for such a publication has long been ripe, and we hope it will find a good harvest.

THE LAWYER AND THE DEMAGOGUE.

It required a degree of effrontery suggesting a coolness quite at variance with the season, on the part of Senator Vest of Missouri to impel him to set himself up as a champion of low-priced food. That, however, was the pretentious attitude assumed by that gentleman in the Senate chamber on June 28 in the progress of an argument on the tariff question. His effort to elucidate his position was characteristically tortuous and disingenuous. Endeavoring to refute the proposition of his opponent in the debate, that certain food supplies had decreased in cost within the past fifteen months, Mr. Vest exhibited some samples of the articles in question with what he claimed to be a statement of their cost abroad and their prices in this country. Mr. Hale of Maine interrupted the speaker by showing that he was citing the prices that obtained here in March, 1891, which have since been materially reduced. His deceptive purpose being thus exposed, Mr. Vest retorted in school-boy fashion by attacking Mr. Campbell, chairman of the national Republican committee, whom he denounced as a paid attorney of P. D. Armour, the Chicago beef packer. Campbell, he said, haunted the committee on beef products from one end of the country to the other, advocating the Armour interest. But has not Mr. Campbell's attitude in that association been far more creditable than that which Mr. Vest has filled as the opponent of all the great industries which modern science has evolved for the production of cheap food products? Mr. Campbell is a lawyer and his high profound ability may be inferred from the fact that the vast Armour interest selected him as its advocate. Whatever he did in that capacity was performed openly, as consistently befitted an attorney contented with his retainer and zealous in behalf of his employer. Had he been striving in the latter's behalf before the Supreme Court of the United States, as Clay, and Webster, and Sumner, and a host of senatorial statesmen have done, and received pay for so doing, he would have been occupying no loftier altitude in the line of professional obligations than he did in endeavoring to set the large interests he represented in their proper light before the national law-makers whose decision was expected to sustain or to destroy them. He did his duty faithfully, and is honored for so doing. Mr. Vest, however, was his invariable antagonist in these discussions—bending down from his senatorial eminence to pose before the public as the champion of a "people's cause" that had only a pretended existence—seeking to conceal the demagogue's designs under the flimsy cloak of fictitious philanthropy. Which of the two occupied the more laudable altitude? Why, a New York alderman would answer in favor of Campbell.

MEDICAL.

CATARRH OF THE UPPER AIR PASSAGES.

BY W. H. MAXSON, M. D.

As the word indicates, catarrh is a disease of the mucous membrane in which the initial symptom is coryza, or running at the nose, as it is often called. In the majority of cases this is of germ origin, and often persistent structural changes take place in the mucous membrane, which become a lifelong disease of the nose or throat—a legacy not altogether pleasant.

A large majority of people are thus diseased, and have in consequence brought into use nostrums, sprays, and lotions without number. Many of them are serviceable and tend to lessen congestion of the air passages, and relieve the pain and irritability, thus affording temporary relief. This treatment is rational so far as it goes, providing the remedies are well selected and are applied directly to the diseased surfaces. But in a study of the etiology and pathology of pharyngeal, laryngeal, and nasal catarrh, and the causes thereof, we have long since come to the conclusion that in the vast majority of cases only temporary relief may be expected from this course of treatment in consequence of the systematic conditions that serve to maintain the diseased condition of the mucous membrane. Therefore it is of the utmost importance to look at the disease, in a sense, as constitutional, and to correct as far as possible the systematic conditions that serve as feeders to the disease.

Nasal catarrh, like all other circumscribed or local catarrhal conditions, depends on imperfect nutrition and loss of nerve tone. The upper air passages are, as a rule, one of the weak links of the system, and consequently most liable to congestion whenever the circulation of the body is unbalanced. Germ life, of which the air is full, first comes in contact with the upper air passages, and if the secretions of that tract are morbid in character, it is a fertile field for the propagation of bacteria.

Catarrh of the nasal organs is often contracted early in life—in infancy, in fact. Improper clothing or improper bathing, unsanitary surroundings, later in life sedentary habits, dyspepsia, breathing impure air, living in close rooms, errors in eating or breathing, and in fact any and every unhealthful practice and condition, all are the foundation stones of impoverished blood, poor nerve force, malnutrition, the sequel of which is the various diseases and morbid tissue changes that follow by inexorable laws from cause to effect. Thus we see the necessity of observing great caution in the proper appropriation of everything with which we have to do that concerns us healthwise.

It is impossible to maintain the tone and nutrition of the respiratory tract above the tone or vitality of the general system. This, if true, makes it necessary to maintain health generally in order to make it possible to cure catarrh. Many say catarrh cannot be cured, and indeed failures everywhere would seem to corroborate the assertion. But this, we are sure, is a hasty conclusion and excluding or ignoring the relation of the disease to the general health. Thus the question of diet and exercise is quite important, and in fact should be considered an initiatory step toward a permanent cure of catarrh. Space will not permit us, at this time, to canvass the subject of diet and exercise farther than to say that the diet and exercise should be adapted for the building up of the general system, improving the digestion and nutrition, and reaching a tone of nerve force that will guarantee a better grade of tissue.

Second, catarrh should be considered from a surgical standpoint as a local disease, and all the hindrances that help the membrane in and about the nose and throat should be removed. With nasal speculum, tongue depressor, pharyngoscope and laryngoscope every nook and corner of the upper air passages should be explored, anterior and posterior nasal regions, the vault of the pharynx, the Eustachian openings. the pharynx, tonsils, and larynx, the vocal cords, and the trachea or windpipe, as far down as its division in the lungs.

In the larger proportion of patients suffering from catarrh we are sure to find thickenings of mucous membrane, usually in the nasal regions, and often a circumscribed area of membrane will be eight or ten times thicker than normal, and frequently filling up the nasal orifice, rendering it difficult to breathe through the nostrils. This comes by constantly taking cold, thus producing a passive congestion of the mucous membrane. The blood vessels enlarge, thus bringing a larger amount of nutriment to that area, which, under the stimulus of the irritation, is built up into connective tissue, producing the abnormal thickening and as the thickened mucous membrane folds over the turbinated bones, the thickened surfaces press upon each other and keep up a constant irritation, making the individual sensitive to colds, and often producing mucous abscesses in the upper part of the nasal regions. We often find polypii, or mucous tumors, hanging down from the roof of the nostril, occluding the orifice, also overgrowths of some portion of the bone of the nasal cavity, enlarged tonsils, follicular enlargements—all serious hindrances to the proper function of that organ—all of which can be removed by the specialist. This done, the cleansing, and possibly a slightly stimulating lotion or spray, will place the upper air passages on an even footing with the general health of the individual and in a condition to be perfectly and permanently restored as the general health is restored.—*Pacific Health Journal.*

COMPARATIVE PATHOLOGY OF THE WHITE MAN AND THE NEGRO.

From an analysis of the cases of 430,466 negro patients treated by the medical department of the American Bureau of Refugees, from 1865 to 1872, Dr. Reyburn, late Surgeon United States Volunteers, draws certain conclusions as to the proclivity of the African race to particular types of disease. A basis of comparison between the pathological tendencies of white people and negroes respectively is afforded by 22,053 cases of disease in white patients treated during the same period. Among the negroes there were 152,141 cases of remittent and intermittent fever, and Dr. Reyburn thinks there is no difference as regards susceptibility to these fevers between the white and the colored populations of the Southern States. The statistics further show that the statements commonly made concerning the extreme liability of negroes to scrofulous disease and pulmonary tuberculosis rest on no solid foundation. The deaths from typhoid fever among the negroes amounted to 25 per cent of the cases treated, this high mortality being dependent on the frequency of severe intestinal lesions. The death rate from diarrhœa and dysentery was also high, owing, according to Dr. Reyburn, to the ignorance of hygienic laws which prevails among the colored people. The negro freedman and the white refugee alike fell victims to epidemic cholera, one-half of the patients dying under every variety of treatment. Delirium tremens was of very rare occurrence among the negroes, a circumstance which Dr. Reyburn attributes to "the want of development of the cerebral hemispheres." Alcoholism, he says, is in the negro more apt to lead to epileptiform convulsions or mania than to delirium tremens. Dr. Reyburn concludes that the negro has not the same power of resistance to acute inflammations, such as pneumonia, as the Caucasian, and does not recover from protracted and exhausting illness, such as typhoid fever, so well as the latter. On the other hand, the negro has greater reparative power after injuries and surgical operations than the white man, in this resembling the dark races in Asia and elsewhere.—*British Medical Journal.*

POISONING FROM ARTIFICIAL TEETH PLATES.

At a recent meeting of the Millers River Medical Society, Dr. Johnson of Erving read an interesting paper upon this subject. He related the history of four cases which had come to his observation, in which the trouble evidently arose from the plates of the artificial teeth. Some of the symptoms common to all the cases were sickness at the stomach, dizziness, dull headaches, loss of weight and strength, mouth and throat sore and red.

Some of the cases had an eruption over the stomach, finally extending over the whole body. Removal of the offending artificial teeth resulted in speedy recovery. His investigations led him to suppose that he had been dealing with real cases of poisoning from the vulcanized red rubber plates.

The coloring matter of the red plates is vermilion, which contains the sulphate of mercury. While this salt is very insoluble, it is possible that under certain conditions, secretions of the mouth may so affect it as to cause poisonous action with those who are very susceptible to the influence of drugs.

The physicians present at the meeting were inclined to be somewhat sceptical in regard to the poisoning theory, but a number of dentists who had been invited were unanimous in saying that a great many persons are certainly unable to wear red rubber plates who have no difficulty with black rubber or metal plates. They all believed that in some cases the red rubber acted as a poison, though the great majority of sore mouths and constitutional troubles from false teeth arise from lack of fit, lack of cleanliness and the non-conducting qualities of the rubber, which encases the roof of the mouth in a tight, impervious jacket. This tight plate, with some people, like a tight rubber boot on the foot, results in pain and trouble.

Another cause of trouble is the use of hurriedly made, poorly vulcanized plates. These are full of small holes, which afford lodgment for fermenting matter and bacteria, and naturally produce a dangerous condition of things.

All the dentists agreed that a metal plate was their invariable resort in cases where symptoms of disturbance arose from rubber plates. Black rubber often proved wholly inoffensive where the red rubber could not be tolerated.

So far as the direct poisonous influence of the sulphate of mercury is concerned, it seems almost incredible that the very small quantity which could by any means be absorbed into the system, should produce poisonous results. Yet when it is remembered that some persons are peculiarly susceptible to mercury and become "salivated" with the smallest doses, i. is not incredible that with a few, the mercury in the red rubber may act as a specific poison.

It should be remembered, however, that prepared rubber used by the dentists in making the plates is made under a private and secret process, that the exact composition is unknown, and that other and more virulent ingredients enter into it, ingredients which are usually inert, but which become active and powerful under certain conditions. A small amount of arsenic, for instance, if introduced into the composition, would make plain the reason for much of the difficulty arising from rubber teeth plates. W. H. B.

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It's a Poor Rule, etc.—Mind cure doctor—Make up your mind there is no pain, and there is none. Five dollars, please.

Patient (moving toward the door)—Make up your mind there is no payin', and there is none.

* * *

A Serious Condition.—Old Lady—Doctor, do you think there is anything the matter with my lungs?

Physician (after careful examination)—I find, madam, that your lungs are in a normal condition.

Old Lady (with a sigh of resignation)—And about how long can I expect to live with them in that condition?

* * *

The Cause of Baldness, says a recent German writer, (*Med. Rec*), is too much barbering. In support of this theory he instances long-haired artists who never trouble the barber and have a plentiful stock of hair, but he forgets that such people are usually killed off by an outraged populace before they get old enough to be bald.

* * *

Cleaning Silks and Ribbons.—Silks and ribbons may be cleaned and made to look like new by sponging them with equal parts of strong tea and vinegar. Iron with a not too hot iron —*Ladies' Home Journal.*

HYGIENIC.

HYGIENIC CLOTHING.

BY FRANK H. DANIELS, A. M., M. D., VISITING PHYSICIAN TO THE MANHATTAN HOSPITAL.

[Read before the Harvard Medical Society of New York City, January 9, 1892.]

At the present day scientific clothing enters so largely into the modern economy that it is important for us medical men to look back occasionally and review the progress which has been made in this department. Not as tailors, to be sure, for with the æsthetic side of this question I will not weary you. But as hygienists it is necessary for us not only to be abreast of the times, but also to understand thoroughly what is required of good clothing, and how that requirement can best be filled. The outer clothing may indeed adorn; the inner must be made on scientific principles, and the latter is of the greatest importance.

An ideal clothing is one which does not interfere with the functional activity of the skin, while it at the same time protects it against sudden changes of temperature. The normal skin is an excretory as well as a secretory organ, excreting a small quantity of salts, a little carbonic acid and a large quantity of water in the form of perspiration, both sensible and insensible. The total amount excreted by the skin is, as you know, large, and has been estimated by Sequin as eleven grains in a minute, or more than two pounds in the twenty-four hours.

The quantity of carbonic acid thrown off by the skin of a healthy man in twenty-four hours is about one hundred and fifty grains; this quantity is, however, increased by a rise of temperature or by exercise. The quantity of oxygen consumed is about the same; but the thickness of the human epidermis affords a great obstruction to any diffusion between the gases in the blood of the cutaneous capillaries and the external air.

According to Foster, the proportion of the insensible to the sensible perspiration will depend on the rapidity of the secretion in reference to the dryness, temperature, and amount of movement of the surrounding atmosphere. Thus, supposing the rate of secretion to remain constant, the drier and hotter the air, and the more rapidly the strata of air in contact with the body are renewed, the greater is the amount of sensible perspiration which is by evaporation converted into the insensible condition; and conversely, when the air is cool, moist, and stagnant, a large amount of the total perspiration may remain on the skin as sensible sweat.

The excretory activity, or, as we shall call it, the functional activity of the skin, is usually dependent upon vascular dilatation. When the excretions of the skin are diminished, the cutaneous blood-vessels are usually found contracted; and *vice versa*, when these vessels are dilated, the excretions become increased in quantity. And by this contraction and dilatation of the cutaneous blood-vessels, with the accompanying variation in the quantity of perspiration, the temperature of the body is largely regulated. It is found that the excretory organs of the human body will do each other's work to a certain extent, and that, if the skin is not acting normally, its excretions are taken care of by the other excretory organs—viz., lungs, kidneys and bowels. The balance of health is, however, under these circumstances, disturbed, and such vicarious action will not be long tolerated.

It will be seen from the above how important is a normal cutaneous function, and how far-reaching is any disturbance of its proper activity. It may be stated as facts, firstly, that, excluding contagious diseases, all acute forms of disease may be avoided if the skin is acting properly; secondly, all chronic diseases may be held in check by keeping up the functional activity of the skin. Whenever a patient, suffering from chronic disease of any internal organ, seeks our advice, we always do everything in our power to keep the skin in active condition; and we find that, when the latter gives out, our treatment is of little avail.

The function of the skin being threefold (an excretor of gases, an excretor of fluids, and a heat regulator), a perfect clothing must answer a threefold requirement, and we will now investigate the properties of fabrics in general use with regard to their porosity, hygroscopic qualities, and heat-conducting qualities.

Linen, silk, cotton, and wool are the only materials we shall consider, as they are the only ones which are now, or ever have been, used to any extent in clothing.

No kind of clothing fabric yields warmth; it can only preserve the natural warmth of the body, and prevent its radiation or conduction, and this it does well or badly, according as it is a bad or good conductor of heat.

Count Rumford was the first to experiment in this direction, and he proceeded as follows: Several thermometers with long stems were wound about with a certain weight of the different materials to be tested, and, after being plunged into boiling water and allowed to cool to a certain point, were then placed in a freezing mixture. The time required for the different thermometers to reach certain points was then noted, and in this way he was able to determine which material protected the bulb of the thermometer best from the surrounding medium, or, in other words, which was the best non-conductor of heat.

These experiments show that raw silk, as spun by the worm, is the best non-conductor, and that raw wool is the next best, followed by silk thread, spun wool, cotton, and linen. Raw silk cannot be used, so that wool stands at the head of our list, and raw wool stands to spun wool as a non-conductor as eleven to nine—i. e., it is over 20 per cent better.

[To be continued.]

WARNING AGAINST KISSING ANIMALS

DANGERS OF A DISGUSTING HABIT.

The disgusting and dangerous fondling and kissing of beasts cannot be effectually opposed, perhaps, on the whole; but some persons may be benefited by the repetition of warnings against the numerous infections which that practice is liable to incur; such as hydatids from dogs, diphtheria from cats and pigeons, and from cats the obstinate and loathsome diseases of ringworm and favus. Dr. Fred J. Leviseur, of No. 687 Lexington avenue, suggests this warning in the *Medical Record* from having had occasion repeatedly to trace individual cases, as well as small epidemics, of both ringworm and favus, to their source in the endearment of cats. He gives two recent cases, with particulars, of both cat and child. Favus, he states, is a disease peculiar to mice, from which the cat gets it.

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The virtue of prosperity is temperance. The virtue of adversity is fortitude.

Hard workers are usually honest. Industry lifts them above temptation.

Poisoned Wall Paper a Humbug.—Professor Chandler's discourse at the Academy, at its last anniversary, was a sharp arraignment of Boston doctors. It is not often that one of the spokes turns on the hub in this way. It is well for the peace between the two cities that the castigation did not come from a genuine M. D. For, while Professor Chandler is a member of a medical faculty, and once received the honorary degree of M. D., he seems never to have used it, and to always speak of himself as a layman when among doctors. He is enough of a doctor to weigh medical evidence very accurately, and to know the true value of subjective symptoms. Dr. Chandler says that the arsenical poisoning idea in Boston is a fad, and with the late Dr. John C. Dalton, himself a native of Massachusetts, he believes that the whole idea of anybody's being poisoned from wall paper is a humbug.—*The Post-Graduate.*

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No Organic Disease.—Mrs. Gumps—Well, these 'ere doctors don't know much, that's a fact. You know what a time I've had with little Johnny's mouth lately?

Caller—Yes; you told me.

Mrs. Gumps—Well, at last I took him to a doctor. The doctor looked him over and said: Johnny "hadn't no organic disease." And yet there Johnny sat in plain sight, with his lips sore from playin' the mouth organ.—*Ex.*

ADULTERATION.

HONEY AND ITS ADULTERATIONS.

Cincinnati, June 27, 1892.

The Analyst Publishing Company.

Gentlemen:—Allow me to give you a short history of my experience as a beekeeper, which will explain satisfactorily to anyone my "fraud on the community," as Mr Wiley pleases to term it.

It was, I believe, in the spring of '69 when the first honey extractor made its appearance in America, a wooden barrel with a revolving basket of tin inside of it, imported, I believe, by I. N. King of New York. My friend, I. H. Hill, of Mt. Healthy, O., bought one of those extractors, which I used as a pattern and at once had one made for me. On the roof of my house, at the foot of the hill, at the edge of our city, at that time, was my apiary. The garret being my extracting room, the wooden extractor became leaky and the idea offered itself: "Why not have the revolving basket in a tin can?" In August, 1869, Mr. Henry Stephenson, a beekeeping friend and tinner made for me a tin honey-extractor, very likely the first tin honey-extractor in America. The following year, 1870, Mr Stephenson made a dozen or more tin honey-extractors, which I sold to my beekeeping friends.

Aided by the honey extractor, I had raised over 500 lbs. of fine clover honey on the roof of my house and, like my friends, was surprised at the large crop. We sell now a carload to one of our customers every five or six weeks. All of the 500 lbs. were sold by the time that the crop of 1870 was harvested, which was larger than that of '69. We bought some honey from neighboring beekeepers to supply our demand and increased our apiary.

My labels of to-day are the same as they were twenty odd years ago, plain and unostentatious, and read: "Pure machine-extracted honey from the Italian apiary of C. F. Muth." The "Son" was added afterwards, when my son became partner in the business. Fancy labels were offered us many times, and promptly refused, because, in my estimation, our pure honey did not need them and I knew that snide goods were generally adorned with fancy labels. Besides, our trade had become accustomed to our plain labels and we, naturally, disliked to make a change, considering the old labels our trade mark.

I enclose samples of our labels, the same we had now for twenty odd years. Being in the mercantile business, we had our own square glass honey jars made and sold them largely to other beekeepers who bought also the same labels we used. We had them printed, omitting the name of producers, so that we could have their address printed at short notice Being a beekeeper, I had no more idea twenty-three years ago than I have now of imposing on the public by the means of my labels. Our labels might be changed slightly to meet the extra nice criticism of some fault-finders, but considering them a trade-mark, we are apt to leave them as they are. As we produce 8—10,000 lbs. of extracted honey in a good season, I leave it to the reader to judge of the importance of the so-called fraud by our labels. To me the matter seems ridiculous. Further, I deny the statement of Professor Wiley that we ever labeled California honey as coming from our own apiary. If we ever had such labels printed I should know it, and we should still have some on hand,

When quoting Professor Wiley's report I had not the least desire of misquoting or doing an injustice to the professor, I merely quoted the sense of his report. Its exact wording is as immaterial to me as the date when or the place where it was made. It is immaterial to me whether it was Flint, Detroit or Indianapolis. But the fact is that at one of those places, I gave the professor at his request, a number of samples of honey for analysis. All of it was pure honey without any doubt about it, i. e., if there is any pure honey at all. I don't know what standard Professor Wiley has for pure honey, but I verily believe that my samples could have served the professor as a standard. Professor Wiley reported at the next annual meeting in person, in substance as follows: That most of those samples were adulterated, and that one was probably pure. There were present there: Professor Cook, of the Agricultural College at Lansing, Mich.; Mr. Thomas G. Newman, of the *A. B. Journal* of Chicago, and a large number of other beekeepers, who remember and will verify my statement.

Our bee journals and beekeepers, myself inclusive, have been and are fighting adulterations, and we solicit the aid of Professor Wiley, as well as that of any other chemist. But we have no use for scientific pleasantries, such as Professor Wiley indulges in.

His article to the *Popular Science Monthly*, alleging that a factory in Philadelphia was manufacturing comb-honey of stearine (or paraffine) and filling the cells with glucose, then capping them over in a nicer manner than the bees could do it, stating furthermore that this spurious honey sold readily in our markets for pure honey, has done harm to beekeepers and honey dealers. If Professor Wiley had not been posted on the subject, he should have posted himself before giving to the world such a falsehood. If he would have explained his "scientific pleasantry" in due time, as he was forced to do later, it would have been more becoming to the high office he fills, and it would have created less bad blood among beekeepers.

In this case I may also lack statistical preciseness, but it alters not the fact that Professor Wiley wrote the article mentioned above to the *P. S. Monthly* and never took it back until a few years afterwards when he was compelled to by the action of beekeepers and editors of bee journals which had become too strong for him to resist.

Is it a wonder that beekeepers and editors of bee journals don't count on Professor Wiley as one of their friends? And are beekeepers to blame if they don't?

The adulterator is the natural enemy of every honest producer and dealer, and every assistance in the battle against him will be gladly accepted by Yours truly,

CHARLES F. MUTH.

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COLORING AND ADULTERATION OF CONFECTIONERY.

Wilton G. Berry writes on this subject at some length in the New York *Medical Times*. Pure candy should not contain any appreciable amount of mineral matter, but some mineral substance he says is added to give additional weight. "The most frequent adulterant used for this purpose is terra alba or white earth, consisting of sulphate of lime, which is very heavy. This substance may be readily detected by treating the suspected compound for some hours with warm water in a test tube, and when thoroughly disintegrated, observing whether there remains a heavy undissolved residue which settles to the bottom of the test tube; if so, the probabilities are that terra alba is present, the accuracy of which may be verified by any familiar chemical test." Mr. Berry gives a list of coloring materials used, some of which are practically harmless and some he endorses which we think of doubtful standing. The old standbys are turmeric, saffron and safflower for yellow, indigo for blue; spinach juice or other forms of chlorophyll for green, fine charcoal for black, and for the much used red, cochineal. Anilins which he remarks are "said to be harmless when pure," should be eliminated, for some are of doubtful quality when pure, and all are apt to be contaminated with arsenic or other deadly compounds. Carmine which is mentioned as harmless is a tin compound, and tin salts are not innocuous by any means. Brown may be obtained by the use of caramel, or even black if the sugar be properly treated. "In all cases the purity of the coloring matter should be tested," says the author, "and for this purpose it is first necessary to determine by chemical means whether the color is of organic or inorganic origin; when thus determined and found to be of inorganic matter it should be ascertained whether any of the following mineral substances are present as an injurious adulteration: A red color would indicate the presence of the oxides of iron; a yellow color, chromate of barium, lead salts, arsenic and antimony; a green color, arsenic and copper; a blue color, Prussian blue; and a white color, salts of zinc, and sulphate of barium. * * These adulterants have almost entirely disappeared from the trade in this city, and it is but rarely that they are met with, more often as accidental than intentional additions. Lime, starch, bronze powder, leaf foil of copper, tin, verdigris, red lead and vermillion are all said to have been found in candies, but the cases are exceedingly rare at present. The presence of copper has been frequently detected, its presence resulting more from indifference and carelessness than from any intention of adulteration. This accidental presence of the metal results from boiling the sugar in improperly prepared kettles made of copper, the long continual boiling acting upon the metal and dissolving the same; the quantity, however, is very minute. Many such cases have come under the notice of the health department and been traced to this source. During the year many hundreds of samples of candies have been collected from the large manufacturers, the corner shops and venders of penny sweets, and been analyzed, and in but few cases has anything of a suspicious nature been discovered. Many of the complaints of sickness and poisoning from eating cheap candies is a result of over-indulgence rather than from any poisonous ingredients present."

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COCOAS AND CHOCOLATES.

The AMERICAN ANALYST has on several occasions published analyses of various cocoa preparations on the market, and has invariably given praise where praise was due, and warned the reader as well against such manufactures as these analyses showed to be less wholesome or harmful. At that time those makers of cocoas whose product we found to be deserving of criticism became angry, called us hard names, and flatly denied the correctness of our analyses and the justice of our strictures, but all of them failed to advance any proof of their bare assertions. We are glad to be able now to produce the report of the chemists of the Department of Agriculture of the analyses made of cocoa preparations by that department, which has just been published, and which corroborates every word we have said. In passing, we may also add the remark that the public seems also to have found out that we were correct, for the sales of those cocoas we found to be bad have fallen off to such a large extent that one house seems to have retired from this market, and the other is keeping up a mere struggle for existence in the vain hope that by spending large sums in advertising and appealing to American snobbery, they may be able to live down the truth and force their worthless foreign-made stuff on the American public at double price. It may be remembered by our readers that at that time we took especial occasion to warn them against the so-called "Holland Cocoa." In this late report we find the chemist endorsing this view in these words: "The desire to make an easily digestible cocoa preparation without removing the fat, led to the preparation of the so-called Holland cocoa. (It is, however, not certain that the object is in reality accomplished.) By many it is stated that the alkalies hinder the digestion by neutralization of the acid of the stomach; and besides, by saponification of the fat, because experience shows that the soap is not agreeable to the stomach. Contrary opinions are asserted from the standpoint of sanitary police."

Dr. Stutzer, the celebrated German food chemist, is quoted in this report as saying of this Holland process, that the addition of potash, soda, or ammonia, is not only unnecessary, but cocoas so prepared showed the most unfavorable results.

The report also says that there is probably no more misleading or more abused term in the English language than the term "soluble cocoa." No cocoa in the market contains a very considerable percentage of matter soluble in water, unless the material so dissolved is foreign soluble material that has been added during the process of preparation. The term seems to be used to denote a preparation that allows none of the insoluble matter to deposit from the beverage prepared from it. This purpose may be accomplished in two ways—the material may be so finely divided that a very long time will be required for its deposition; or foreign substances (as starch, or sugar) may be added to render the liquid of so high a specific gravity, or so pasty, that the insoluble matter will not deposit. The first method is decidedly to be preferred; it accomplishes the object in view and puts the preparation in better condition for the action of the digestive juices. (It is this first method which is employed in the Walter Baker & Co. preparations.) The use of alkalies for this purpose is quite generally regarded as injurious, and the investigations of Stutzer show that the effect is opposite to that desired. He also states that these substances are used to aid the opening (*aufschliessen*) of the beans and not for the purpose of increasing the digestibility of the preparation.

So far we have closely followed the report in generalities, but now we shall have to confine ourselves to a brief resumé of what the report says of various special brands. In our former article we stated that the best preparation of cocoa and cheapest at the same time was Walter Baker & Co.'s. We find that we are also backed up in this opinion by this report. Of the preparations of Walter Baker & Co., which were bought at various stores in Washington, D. C., analyzed and reported on, there are the following, numbered and described as follows:

1. Baker's Chocolate.
11. Baker's Vanilla Chocolate.
37. Baker's Cocoa.
38. Baker's Breakfast Cocoa.
43. Baker's Premium Cracked Cocoa.
56. Baker's Broma (a combination of cocoa with other ingredients).
59. Baker's Racahout des Arabes (a mixture of chocolate, starch and sugar).

The report of the analyses of these various preparations shows that No. 1, Baker's Chocolate, contains 49.81 per cent of fat, no sugar, a low amount of ash, no alkali, and is the best among the six samples of plain chocolates examined.

No. 11, Baker's Vanilla Chocolate, was found entirely free from foreign starches, flavored with genuine vanilla, contained 26.03 per cent of fat, normal amount of ash, and no alkali, a fine specimen of sweet chocolate.

No 37, Baker's Cocoa, contained no added starch, 32.52 per cent of fat, no sugar, normal ash, and no alkali; it was simply a strictly pure, well-prepared cocoa.

No. 38, Baker's Breakfast Cocoa, contained no added starch, 25.83 per cent of fat, no sugar, no alkali, but was just what it was represented.

No. 43, Baker's Cracked Cocoa, contained 50.85 per cent of fat, or just the normal amount of fat contained in the best cocoa, and the ash was normal.

No. 56, Baker's Broma, which is sold as a compound, was found to be such, containing 23.62 per cent of fat, and not any unhealthy ingredients.

No. 59, Baker's Racahout des Arabes, a chocolate confection, was also found entirely free from anything injurious, and a very fine specimen of this kind of preparation.

It will thus be seen that again have the various preparations of Walter Baker & Co. come out triumphantly from the fairest but severest test made under the law and by the national government, and thus our previously expressed high opinion is vindicated.

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LANGUAGE.—A German authority says that almost a third of all humanity—that is, 400,000,000—speak the Chinese language. Then the Hindoo language is spoken by more than 100,000,000. In the third place stands the English, spoken by almost 100,000,000. Fourth, the Russian, with 89,000,000, while the German language is spoken by 57,000,000 tongues and the Spanish by 48,000,000. Of the European languages the French is fifth in place.

ADULTERATION OF FOOD AND DRUGS.

That there is a great deal of adulteration in the preparation of articles daily used for food by the people is an indisputable fact. So also in the manufacture and preparation of drugs is adulteration practiced to a considerable extent. Under the direction of the Treasury Department of the United States a thorough investigation was recently made, and in a bulletin on the subject Secretary Foster announces that adulteration is not so universal as was supposed, and that really harmful adulteration has not been discovered.

The purity of food and drugs should be protected by all means, but what are you going to do about it when people won't buy goods that are *not* adulterated? A pharmaceutical contemporary shows that uncolored pure ground mustard cannot be sold, because customers will not believe it is pure, saying it is adulterated with corn meal. When colored with turmeric to the extent of five or six pounds to the thousand pounds of mustard, the customer is satisfied. In many other instances so-called adulteration is a commercial necessity, but the small quantities of coloring matter introduced is not adulteration in the true sense of the term, because it is not intended to cheapen the cost of the product, but only to make it salable.

There are thousands of persons who will not buy or eat canned peas unless they possess that bright green color which can only be imparted to them by means of sulphate of copper. While the use of this poisonous coloring matter is not to be recommended, it has been demonstrated that such a small quantity is required to impart the desired color that a person might safely eat at one time two or three two-pound cans of the peas without experiencing any ill effects so far as the poison is concerned.

The debasing of coffees, teas, spices, and many other articles is reprehensible, but it appears to be more injurious to the pocket than to the health of the consumer. We do not believe, however, that adulteration is so universally practiced as is generally supposed, and we are sustained in this view of the case by competent officials of the United States.

Many States have stringent laws on the subject, but they do not, as a rule, strike at the right point to evade the evil. The maker and producer alone know whether or not all goods they put upon the market are pure (unless subsequent analysis is resorted to), while it is usually the innocent retailer who is made to suffer when impure articles are found in his possession.

All "combination" goods, or articles which might be considered as adulterated, should be clearly designated as such by the producer, and then persons who want cheap or inferior supplies, would know just what they are buying. But the retail grocery and retail drug store are not the places to strike at whatever evils there may be in the debasement of food and drug products.—*Merchant Sentinel.*

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When the burners of lamps become clogged, boil them in strong soapsuds.

Mould can be prevented from forming on fruit jellies by pouring a little paraffine over the top, which when cold will harden to a solid cake which can be easily removed when desired.

The superior advantages of wearing wool next the skin are easily apparent. Its adaptability to the requirements of the difference in climates and the changes in seasons, is superior to any other dress material.

The foot of a coarse cotton stocking is superior to a sponge for bathing purposes.

HOUSEHOLD.

BREAD.

SHALL IT BE FASHIONABLE OR HEALTHY? WHICH?

When the steel roller was substituted for the upper and nether millstone, it was supposed that the perfection of flour-making had been reached. Now comes Erastus Wyman, who maintains in a paper contributed to the last number of the *North American Review* that the science of bread-making will demand something more than the pure, white flour which has so long been the pride of the bread-makers. Fashion has made a demand for white bread. The millers have complied with the demand. Mechanical skill has come to their assistance, and every part of the wheat that would tend to darken the flour is removed with a precision and thoroughness simply wonderful. The inquiry is made by the writer whether the process tends to make the bread better? "Does it give the workingman a greater return for his hard-earned loaf? Does the refined milling process give to the convalescing invalid, to the growing child, more strength and nutriment than did the old-fashioned dark bread?" These questions are answered in the negative. It is not the first time that they have been raised and answered. The opinion of a prominent English physician is quoted that separation of bran from flour, which became the fashion at the beginning of the present century, has been good for the doctors, and has done much to create the dental profession now so prominent in this and other countries "It has reached its present magnitude because our food is systematically deprived of lime, salts and phosphoric acid, the creators of nerve, bone and tissue, which especially are so signally absent from our modern white bread."

The writer maintains that there is great need of a reversal of opinion which demands white starchy flour. But until the fashion is abandoned the whitest flour that millers can make will probably have the call. The theories for dark bread are all good. They have always been supported by a great array of facts. There has always been a considerable minority that have reduced the theory to practice. But fashion has ruled for the majority. If the majority demanded brown bread, the millers would be ready enough to meet the demand. Even now bakers are supplying many customers with bread made from wheat, out of which no property has been eliminated.

In Great Britain a company was formed in 1890 for the manufacture of the whole-wheat meal. From this small beginning there have been great results in a short time. Consumers have rapidly multiplied. Bread and biscuits made from such meal are in demand. New companies have been formed, and the sales have already reached large figures. It is claimed that if there was as much science employed in making bread as is now employed in making beer, white bread would soon go out of fashion as an inferior article. The revolution in bread has possibly begun, but it has not yet assumed any great prominence. If it goes in Great Britain it will probably go in this country.

The *American Miller* some time ago described the new process used in the manufacture of whole-wheat meal:

The iron mill used is of exceeding simplicity and acts by creating two exceedingly powerful revolving air-currents, by which the grains of wheat are thrown against each other, thus being reduced by attrition—bran, germ and kernel—to a flour, which, as soon as fine enough, is floated off on a rising air-current and deposited in the bin above the packer, without the necessity of submitting it to any bolting or sifting process. The grinding is done at low temperature; the meal is perfectly dried and aerated by the circulating air-currents, and the whole grain is ground. Thus all the elements present in the wheat are, also, found in their natural proportions in the meal. The bread baked from this meal is not white, but assumes a warm, golden-brownish tint. It is free from the rasping grittiness of the imperfectly ground Graham bread, the bran in which, never having been thoroughly pulverized, acts as an irritant upon the delicate digestive apparatus. The bread made from the whole-wheat meal has a richer, more palatable taste than the ordinary wheat bread.—*Bulletin.*

NUTRITIVE VALUE OF VARIOUS FOODS.

SOMETHING FROM WHICH ONE MAY LEARN WHAT HE SHOULD EAT TO PRESERVE HEALTH AND STRENGTH.

By M. Dujaxdin-Beaumetz.

The taking of food is done with a view to restoring the losses undergone by an organism in the course of the continual destruction of the constituent elements of our tissues and to keep up the heat of our bodies. My readers are undoubtedly aware of the fact that our frame is constantly consuming a portion of itself, that each day it loses a certain quantity of nitrogen, carbon, water and salts. It is, of course, necessary that the food we take should be sufficient in quantity and quality to make good these losses, otherwise we must of necessity grow weak, dwindle away and die.

The amount of nitrogen and carbon has been accurately estimated; in twenty-four hours a man consumes twenty grammes of nitrogen, 310 grammes of carbon, and gives off by the breath and by the different secreting organs two or three litres of water and about thirty grammes of salts. Our food, therefore, must be of such a nature as to allow the organism to repair its losses, a food stuff being a substance of many different origins, which when introduced into the living body may be used for nutrition.

The inorganic kingdom supplies us, either directly or through the intermediary of the animals and plants with which we nourish ourselves, with water, chloride of sodium, which is found in the blood and muscles, salts of lime and particularly the phosphate and carbonate which constitute more than half of the framework of the body, and salts of sodium, potassium, magnesium and iron, which are useful in different degrees for tissue formation.

The vegetable kingdom gives to man substances composed of oxygen, carbon, hydrogen, ternary substances, which are starch, sugar and fat, and, in addition, compound materials made up of the three foregoing elements, to which a fourth—nitrogen—is added, such as gluten, which we find in many seeds, but particularly in cereals and the soft portion of plants.

The food which we derive from the animal kingdom consists of a variety of forms of albuminoid or nitrogenous substances, such as albumen, fibrine, caseine, as well as non-nitrogenous substances, such as fat and sugar of milk.

A complete form of food, such as milk or eggs, contains all the elements necessary for our body. Ternary forms of food, such as fat, which keep up the combustion that takes place in the depth of our tissues, sometimes go by the name of respiratory forms of food; whereas the nitrogenous or quaternary substances are often called plastic food elements, as they are specially destined to replace lost tissue. The importance of the latter is shown by the fact that the nitrogenous substances predominate in the blood and muscles.

Our food contains greater or less quantities of oxygen, hydrogen, carbon and nitrogen, and those substances which contain them all in the exact proportion necessary for the restoration of organic tissues are, as I have already said, complete forms of food. At the head of this class we must place milk and eggs, and meat is the most nutritive element after them; it contains the most nitrogenous substance, and its composition is about the same, no matter from what species it is taken. Fish is very similar to many forms of meat, and its nutritive value is very nearly identical. Just as is the case with meat, fish with fatty flesh is the most nourishing variety.

Dried vegetables, such as peas and beans, contain more nitrogenous matter than cereals, and even than the flesh of animals; but as regards their nutritive value, it should not be thought that it is a matter of indifference to use either one of two forms of food which contain about the same amount of nitrogen and carbon. Thus, although 100 grammes of beans contain more nitrogen and carbon than a similar amount of meat, still they could not replace 100 grammes of this substance. That they are chemically equivalent is not sufficient, as the one is not so easily assimilated as the other.

The cereals supply us with flour, which is used every day in making bread. This form of food has a high nutritive value. The finer kinds of bread contain more nitrogen, but less saline matter, which is found in larger quantities in common bread, of which the flour has been less carefully bolted.

Certain vegetables, such as peas, beans and lentils, contain a very high proportion of nitrogen and starch, and are so nourishing on this account that they have been called the poor man's meat.

Potatoes, rich in starch, but lacking in nitrogen, are not so nutritive, but go very well combined with meat. Cheese, which is very rich in nitrogen, has a highly alimentary vein.

I shall not carry this study of detail any further, but there is one point to which I should like to draw attention—namely, the necessity of seeking the elements of nutrition in both of the kingdoms, both animal and vegetable, man being an omnivorous creature. To obtain 310 grammes of carbon it would be necessary to absorb 1.183 grammes of meat, which, in addition to the cost, would require the organism to do such an amount of work that it might suffer in consequence. In the same way a purely vegetable diet would require us to absorb such an enormous weight of food that our digestive tube would not be able to stand it, as the intestines of man have neither the form nor dimensions of those of animals.

The exact knowledge of the losses incurred by an organism lead us to an estimate of the amount of alimentary substances necessary for the support of each individual. It is necessary to replace regularly the daily loss, but, in addition to this, when a person works—that is to say, produces heat and movements, and, in consequence, consumes his tissues—it is necessary, in order that the equilibrium indispensable to health and even to existence may be upheld, that the organism should receive an amount of alimentary substances proportional to the expenditure due to the labor. In other words, we have to distinguish between the amount sufficient for every day needs and the amount required by a working organism.

The alimentary regimen must be modified in its quantity according to whether a person works a little or a great deal, and in its quality according to climates. The inhabitant of warm climates eats little meat, but relies chiefly on vegetables and sweet and slightly acid fruit; he should be very careful about the effect of alcoholic drinks. On the other hand, the inhabitant of cold climates prefers nitrogenous food and fats. The tonic action of the cold gives greater activity in the digestive functions, and enables the organism to accumulate the materials necessary for the production of heat, which places the body in the position to resist the action of any low degree of temperature.

WISE SAYINGS WELL SAID.

Crimes lead into one another.—*Burke.*

The dew of compassion is a tear.—*Byron.*

Doubt is hell in the human soul.—*Gaspain.*

Chance generally favors the prudent.—*Goubert.*

Do the duty which lies nearest to thee.—*Goethe.*

Silence is the severest criticism —*Charles Buxton.*

There are remedies for all things but death.—*Carlyle.*

Death is a commingling of eternity with time. —*Goethe.*

The world itself is too small for the covetous.—*Seneca.*

Faith builds a bridge across the gulf of death.—*Young.*

The most effective coquetry is innocence.—*Lamartine.*

Quick believers need broad shoulders.—*George Herbert.*

Wind puffs up empty bladders; opinions fools. —*Socrates.*

Desire of having is the sin of covetousness.—*Shakespeare.*

Everyone drags its shadow, and every mind its doubts.—*Victor Hugo.*

Though 'tis pleasant weaving nets, 'tis wiser to make cages.—*Moore.*

Character is the diamond that scratches every other stone.—*Bartol.*

Never cut with a knife what you can cut with a spoon.—*Charles Buxton.*

So grasping is dishonesty that it is no respecter of persons —*Bancroft.*

It is only in little matters that men are cowards. *William Henry Herbert.*

He who would arrive at fairyland must face the phantoms.—*Bulwer Lytton.*

Neither the naked hand, nor the understanding, left to itself, can do much.—*Bacon.*

A fool may have his coat embroidered with gold, but it is a fool's coat still.—*Rivarol.*

To Make Cows Milk Like Human Milk.—When cow's milk is used for infants, there should be the following proportions of added ingredients, though sometimes more water is required during the first few weeks of infant life. Cow's milk, half a pint; water, the same quantity; a small teaspoonful, or sixty grains, of sugar of milk and two grains of phosphate of lime; the addition of two teaspoonfuls of cream if the quality of milk be good, but if poor or skimmed, the quantity of cream must be doubled. Thus modified, cow's milk is rendered very nearly like human milk.

There is nothing inconsistent in a carpet dealer wearing a claw-hammer coat.

Cold natures have only recollections; tender natures have remembrances.

Gold-Bronze Varnish.—As is well known, quality of the mixing medium used in the application of gold and silver bronzes has much to do not only with the brilliancy but the lasting quality of the bronze. Some of the French gold-bronze mixtures imported into this country (consisting of a powder and a liquid put up in a box) produce, when first applied, a surface so brilliant as to rival real gilding. After a little time, however, the mixture fails to produce a bright surface, and no amount of "doctoring" with benzin, benzol, oil of turpentine, etc., succeeds in improving it. The bronze powder is evidently not to blame, as with a fresh specimen of the liquid it again gives a brilliant surface. Investigation shows that the cause lies in the development of an acid in the liquid. When first opened the latter is neutral toward litmus, but, no matter how carefully kept, after a short time it reddens litmus. These facts suggested to the writer, some time ago, the employment of a volatile solution of some gum or resin entirely free from acid as a medium for spreading and holding the bronze. He had accidentally (as described in the microscopical department of the *National Druggist* some three years ago) obtained such a solution of dammar resin, which he had used with great satisfaction as a mounting medium. This was obtained in the following manner: He had made a plain benzol solution of dammar, and desiring to thin the same, by mistake he added liquor potassæ instead of benzol. When he discovered his mistake, instead of throwing away the mixture he thoroughly shook it up and stuck it away in the cupboard. A few months afterwards, on accidentally finding the solution, he found it divided into two parts, an upper, absolutely clear solution of dammar, and a lower, thick creamy soap of dammar, potash, lye, and benzol. The clear layer was removed and used, as stated, as a mounting medium in microscopical work, and the balance thrown away. Subsequently, the rescued gum was thinned with benzol (chemically pure or "crystallizable") and used as a medium for gold bronze with the happiest results. The bronze paint is brilliant and gold-like in appearance, and does not tarnish for several months.

Lemonade.—This favorite and well known drink is very delicious when well made. Take four lemons to every quart of water, and eight tablespoonfuls of sugar; rub or squeeze the lemons soft, and slice them upon the sugar; pour over them a little boiling water and let them stand fifteen minutes; then add the necessary amount of water, well iced, stir well and serve. Orangeade is made in the same way, substituting oranges for lemons, but much less sugar is needed.

Care of the Eyes —"Never rub your eyes, nor allow your children to do so from their cradles. Veils are bad for the sight, especially those spotted or covered with a pattern; so eschew veils when you can, or wear the softest, clearest net when obliged to do so. Never read in bed or when lying on the sofa. Sit with your back to the light when engaged in reading or working. Pale blues or greens are the most restful wall papers for the eyes, whereas red is exceedingly fatiguing. Do not read, write, or work longer than two hours together without resting your eyes and closing them for at least five minutes." These are the words of a French woman who is said to know what she is talking about.

Manner is far more attractive than matter; monkeys are watched closer than eagles are.

Long words, like long dresses, frequently hide something wrong about the understanding.

THE DEADLY ELEMENT—WATER.

If we seem to be insistant upon the absolute necessity for extraordinary care for the health this summer, our readers will please bear in mind that this is an exceptional summer, in which the atmospheric conditions are in a high degree inimical to human well-being. It has thus far been easier to note and remember the dry days than the wet ones, so much more frequent have the latter been, and one is tempted to rage in reading of the efforts of the rain-makers to bring down more moisture on the staked plains or anywhere else. Facts justify mankind in the prejudice against excessive water which has been instinctive in our race ever since the flood, at least. Neither of the other elements have killed such vast numbers of human beings. Add together the victims of conflagrations, those who have perished by landslides, earthquakes and avalanches, and all whose "lamp of life" has been blown out by the wind, and the sum total will not be a tithe of the myriads to whom water has been fatal.

When the malefic power of "the unstable element" is spoken of, one is apt to think of floods, and shipwrecks, and capsized yachts, and rowboats overturned by the fools who rock them for fun, and the expert swimmers who get cramps—but, really, those are only the playful exuberances of Death's sensational fancy, varying the monotony of serious business with his favorite weapon which is water. The real deadliness of water is in its saturation of the atmosphere and the soil, by which humanity's vital tone is lowered and the door opened for the ingress of various grave maladies, and which encourages the breeding of deadly ferments and the cultivation of countless myriads of bacteria in almost infinite varieties. Everyone knows how dangerous to life and health swamps are, how they engender fevers, and plant rheumatisms and other ailments in those exposed to their influences. Well, the persistent downpour of this most humid of damp years has brought almost to the condition of a swamp the greater part of our country, which is not either set up on edge, or of impermeable rock. Naturally, there never were before so many fevers, malarial and others, induced by kindred causes; so many obstinate and severe rheumatisms; so many congestions and colds, which being neglected speedily result in diseases of the lungs and other vital organs. To put off defensive preparation against such ills until attacked by them is like waiting to commence mending a leaky roof until a storm sets in. The wise man most demonstrates his wisdom by foresight and precaution. Recognizing that he is surrounded by influences likely to act injuriously upon his system at its ordinary condition of vitality, he takes measures to strengthen it. He gets rid of the effete matter, the natural waste of life's processes which is in his blood, and whatever bacterial germs, or deteriorating virus of disease may already have found lodgment there. That is the first necessary defensive step. In taking it, purifying, vitalizing, and enriching the life current as he does, he strengthens the entire animal economy. His digestive, assimilative, eliminative, circulatory, and nervous systems, all take new tone together, and, as a consequence, he goes scathless through perils to which others succumb. It is possible that various medicaments may possess virtue for the attainment of such desirable results, but we know of only one in which we have confidence, and that is Ayer's Sarsaparilla, unquestionably the best alterative compound medical science has yet discovered. Its formula is known to and approved by physicians of the highest standing, all over the world, and its components have repeatedly been published in these columns, so it must be regarded as a standard official preparation.

◆

What is Home Without a Mother?—"Well, Maggie," asked a teacher of a little girl, "how is it you are so late this morning to school?"

"Please, sir," was the reply, "there wis a wee bairn cam' to oor house this mornin'."

"Ah," said the teacher, with a smile, "and wasn't your father very pleased with the new baby?"

"No, sir; my father's awa' in Edinburgh, and dinna ken aboot it yet; but it was a guid thing my mother wis at hame; for gin she had been awa', I wadna hae kent what to dae with it."

◆

He Did Not Mind.—Teacher—Johnny, why is George Brown absent?

Johnny—Why, George Brown says his sister's got a cold. But that ain't nothin'; one o' my sisters is got de smallpox, and t'other one de measles, but I come all de same."

◆

DEAFNESS CANNOT BE CURED

by local applications, as they cannot reach the diseased portion of the ear. There is only one way to cure Deafness, and that is by constitutional remedies. Deafness is caused by an inflamed condition of the mucous lining of the Eustachian Tube. When this tube gets inflamed you have a rumbling sound or imperfect hearing, and when it is entirely closed Deafness is the result, and unless the inflammation can be taken out and this tube restored to its normal condition, hearing will be destroyed forever; nine cases out of ten are caused by catarrh, which is nothing but a inflamed condition of the mucous surface.

We will give One Hundred Dollars for any case of Deafness (caused by catarrh) that cannot be cured by Hall's Catarrh Cure. Send for circulars, free.

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BUFFALO LITHIA SPRINGS.—HOT SPRINGS.

TWIN REMEDIES IN

GOUT, RHEUMATIC GOUT AND RHEUMATISM.

WHAT THE HOT SPRINGS PHYSICIANS SAY:

Dr. Algernon S. Garnet, Surgeon (retired), U. S. Navy, Resident Physician, Hot Springs, Ark.:

"My experience in the use of Buffalo Lithia Water is limited to the treatment of **Gout, Rheumatism** and that hybrid disease, **'Rheumatic Gout'** (so called), which is in contradistinction to the **Rheumatoid Arthritis of Garrod.**

"I have had *excellent results* from this Water in these affections, *both in my own person and in the treatment of patients for whom I have prescribed it.* Of course, the remedial agent is its contained **Alkalies** and their solvent properties.

"Hence it is a **prophylactic,** *as well as a* **remedy in Nephritic Colic,** *and forming* **Calculi** *when due to a redundancy of* **Lithic Acid.**"

The Late Dr. Wm. F. Carrington, Resident Physician, Hot Springs, Ark., Surgeon (retired), U.S. Navy, Surgeon Confederate States Navy:

"Buffalo Lithia Water, Spring No. 2, has signally demonstrated its remedial power in **Gout, Rheumatic Gout, Rheumatism, Uric Acid, Gravel** and other maladies dependent upon the **Uric Acid Diathesis.**

"*It not only eliminates from the blood the deleterious agent before it crystallizes, but* **dissolves** *it in the form of* **Calculi,** *at least to a size that renders its passage along the ureters and urethra comparatively easy.*"

Dr. T. B. Buchanan, Resident Physician, Hot Springs, Ark.:

"*Send me five cases* Buffalo Lithia Water, Spring No. 2. I have made use of this Water for **Gout** *in my own person and prescribed it for patients similarly suffering, with the most decided beneficial results. I take pleasure in advising* **gouty** *patients to these Springs.*"

Dr. G. W. Lawrence, Resident Physician, Hot Springs, Ark.:

"I prescribe Buffalo Lithia Water with great confidence, in all diseases of **Uric Acid Diathesis.** When traveling, it is my habit to use this Water as a guarantee for getting a pure water."

Dr. L. S. Ordway, Resident Physician, Hot Springs, Ark.:

"I have used Buffalo Lithia Water Spring No. 2, very extensively and successfully in my practice, in cases of *Rheumatism of the Arthritic* form, especially when complicated with weak, inactive *Kidneys, with inclination to Bright's Disease.* I have also found it an efficient remedy in *Albuminuria of pregnancy.*"

DR. JOHN A BLAYDES, Pres. HOT SPRINGS MEDICAL AND SURGICAL INSTITUTE, ARKANSAS. DR. R. O. BLAYDES, Sec'y

THE STATEMENT OF DR. BLAYDES:

"We have made use of BUFFALO LITHIA WATER with patients of this institution in many obstinate cases of Gout, Rheumatic Gout and Rheumatism, with uniformly excellent results, and in diseases generally of Uric Acid Diathesis regard it as an invaluable remedy. Its action in this class of cases indicates certainly the possession of some extraordinary property."

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A teaspoonful added to a glass of hot or cold water, and sweetened to the taste, will be found refreshing and invigorating.

Dr. A. L. Zurker, Melrose, Mass., says: "It produces a gratifying and remarkable regenerating in a case of sunstroke."

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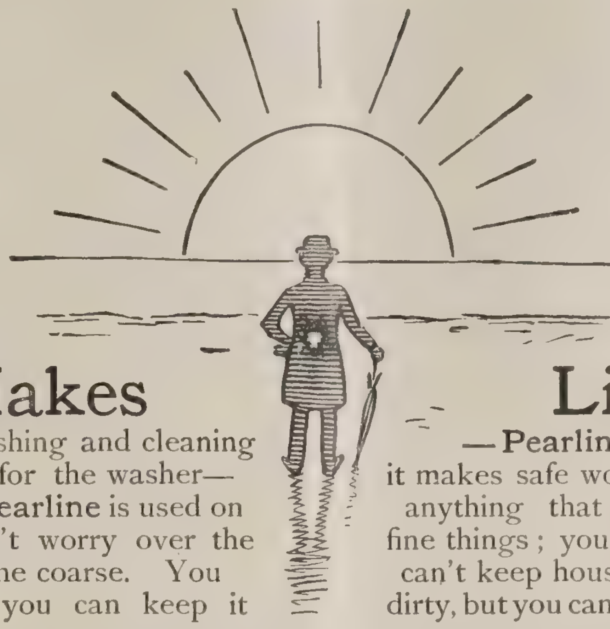
THE NEW BOVININE COMPANY.

The company manufacturing the standard preparation known as Bovinine, celebrated its growth in years and its great popularity among medical men, by reorganizing under a new title which we think is an improvement upon the old one, and by taking quarters in this city which are worthy of a concern having such a wide and enviable reputation. Hereafter, Bovinine will be manufactured by the Bovinine Company, organized under the laws of the State of New Jersey, and having offices and workrooms at 65 South Fifth avenue, New York City. The manufacture of Bovinine in bulk will be carried on as before in Chicago, but the bottling, labeling, packing, etc., will be done at 65 South Fifth avenue. Here, also, Mr. Henry T. Champney, who has been so largely instrumental in developing Bovinine, will have his offices. Bovinine was the first of the raw foods made practical and perfect. As long ago as 1878, it began to win the favor of the medical profession, but during the past six years its progress has been phenomenal. The progress of its first years were due to its intrinsic merits, of the last six to uncommonly good business management. The two forces—merit in the preparation, and wise management—were irresistible. One of the great needs of the medical profession was an actual food, assimilable with the least effort, and a true physiological stimulant; one that should invigorate by renewing the supplies of wanted energy. The history of the many failures made in trying to reach this highly desirable end is not creditable to our much vaunted human ingenuity. Every available article in earth, water or air has been used in the preparation of highly concentrated and easily digested "foods." Some of these are good, some bad, but the majority are hopelessly indifferent. Many of the specially prepared foods admirably serve certain purposes, but the chief merit of Bovinine has been found to be the wide range of its successful application. The infant, the invalid, the mildly æmenic and the athlete derive benefit from its invigorating and reconstructive qualities.



Makes Light work of washing and cleaning —Pearline. It makes light work for the washer— it makes safe work of what is washed. **Pearline** is used on anything that is washable. You needn't worry over the fine things; you needn't work hard over the coarse. You can't keep house well without **Pearline**; you can keep it dirty, but you can't keep it clean.

Beware Peddlers and some unscrupulous grocers will tell you, "this is as good as" or "the same as Pearline." IT'S FALSE—Pearline is never peddled, if your grocers send you an imitation, be honest—*send it back.* 288 JAMES PYLE, New York

THE LINE OF LAKES.

The above name has been applied to the Wisconsin Central Lines, on account of the large number of lakes and summer resorts tributary to its lines. Among some of the well-known summer resorts are Fox Lake, Ill., Lake Villa, Ill., Waukesha, Mukwonago, Cedar Lake, Neenah, Waupaca, Fifield, Butternut and Ashland, Wis. These lakes abound in numerous species of fish, such as black bass, rock bass, pickerel, pike, perch, muskallonge, while sportsmen will find an abundance of game, such as duck, geese, quail, snipe, etc. In the grandeur of her scenery, the charming beauty of her rustic landscapes and the rare perfection of her summer climate, the State of Wisconsin is acknowledged to be without a peer in the Union. Her fame as a refreshing retreat for the overheated, careworn inhabitants of the great cities during the midsummer months, has extended as far southward as the Gulf of Mexico and eastward to the Atlantic.

Pamphlets giving valuable information can be obtained free upon application to G. R. Fitch, G. E. A., New York, N. Y., or Jas. C. Pond, General Passenger and Ticket Agent, Chicago, Ill.

◆

TO TAKE OFF THE SHINE.—It is not generally known, but very well worth remembering, that the shine can be easily and quickly removed from the shoulders and elbows of one's gowns by a gentle friction with emery paper. Don't rub too hard, just enough to raise a little nap, and then, in the case of cashmere or other smooth goods, go over the place a few times with a warmed silk handkerchief.

PREPARATIONS FOR CLEANING MARBLE.—Mix together soft soap, 4 ounces; whiting, 4 ounces; soda, 1 ounce, and a piece of stone blue the size of a walnut; rub it over the marble with a piece of flannel, and leave it for twenty-four hours; then wash it off with clean water, and polish the marble with a piece of flannel or an old piece of felt. To take stains out of white marble, take one ounce of ox-gall, 5 ounces of lye, 1 ounce of turpentine; mix and make into a paste with pipe-clay; put on the paste over the stain, and let it remain several days. To remove iron-mould or ink-spots, put ½ ounce of butter of antimony, and 1 ounce of oxalic acid in 1 pint of rainwater; add enough flour to bring the mixture to a proper consistency. Lay it evenly on the stained part with a brush, and after it has remained for a few days, wash it off, and repeat the process if the stain be not wholly removed.—*National Druggist.*

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Recommended and prescribed by physicians of all schools
FOR
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and all diseases arising from imperfect digestion and derangements of the nervous system.
It aids digestion, and is a brain and nerve food.
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Any of the Parvules will vary from one to four for a dose, according to age, or the frequency of their administration. For instance, *one Parvule every hour, or two every two hours, or three every three hours, and so on for adults, but hourly doses are preferable.* For children one three times a day is the minimum dose.

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A Parvule in a vial with ten minims water and agitated, pink tint gone *immediately*, coating dissolved in *one minute*, entire Parvule dissolved in *four minutes*, solution PERFECT. A much more ready solubility is also assured when in contact with the stomach.

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Give "Bhud," "Tiffin" or "Bungaloe" brands of Tea a fair trial. Use one-third the quantity; make properly, and you will find a golden liquid of exquisite flavor; healthful—not producing nervousness—owing to the iron impregnated soil upon which the Tea is grown; economical, because it is unadulterated, pure and strong. Right Tea made right is what we want to get you to try.

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The seed of this Pepper was obtained from Central America, and by careful cultivation in Louisiana for many years has been so improved in strength, flavor and aroma as to have become a new variety of Red Pepper, superior to all others. The pulp is so handled as to retain all the flavor, strength, aroma and color of the ripe fruit, and to keep unimpaired in any climate. It excites the appetite, promotes digestion, and is pronounced by connoisseurs to be the finest condiment in the world. For medicinal purposes it recommends itself by its purity, strength and diffusible form.

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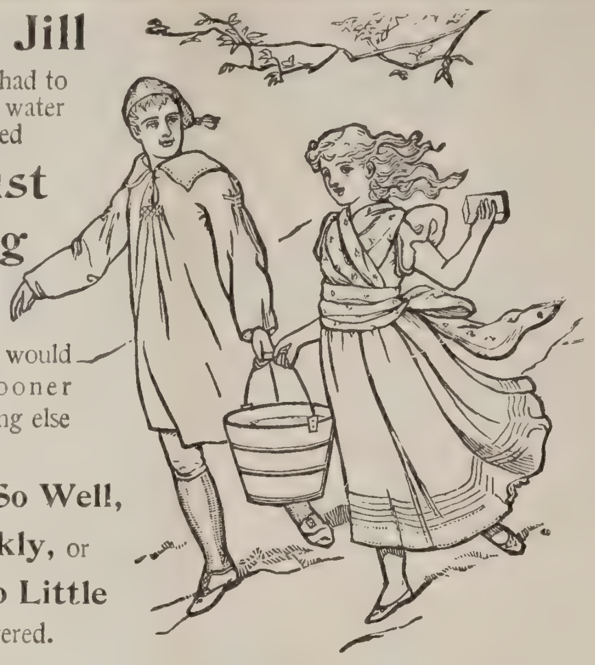

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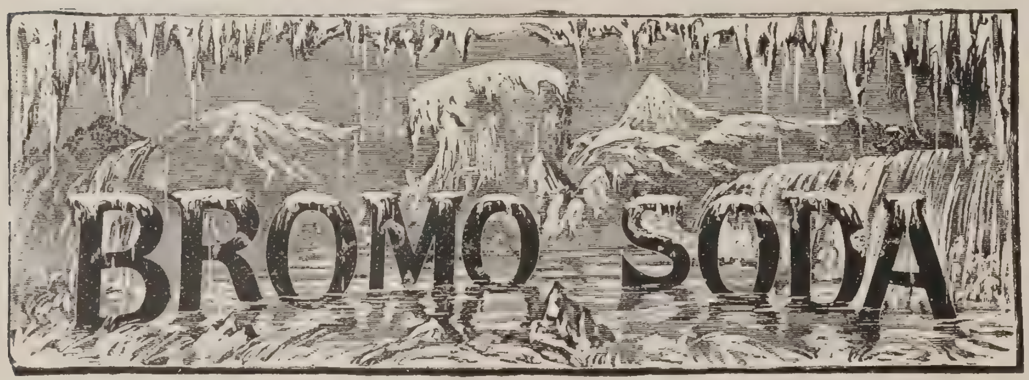

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CONTENTS.

Page
Acne and Blackheads 250
Adulterated Food in Connecticut 252
Adulteration 252
American Public Health Association 250
Book Notices 257
Breakfast Appetite 252
Cocoas and Chocolates 253
Editorial 249
Tired Nature's Sweet Restorcr—Sanitary Matters in Michigan.
Facts for the Kitchen 255
Family Washing 254
Honey and Its Adulterations 252
Household 254
Hygienic 251
Jerks (The) 250
Medical 250
Miscellaneous 255
Number of Stars 255
Oleomargarine in Maryland 253
Report of Minnesota Dairy Commissioner 254
Use and Abuse of Soap 251

TIRED NATURE'S SWEET RESTORER.

It is undoubtedly true that the requirements of different individuals differ widely, and that there are many persons who thrive well on an allowance of sleep that would not be sufficient to keep other persons out of an asylum for the insane. History is full of anecdotes (some of which are probably more or less truthful—generally less), about famous individuals who slept very little. In most of these cases it is likely that nature was defied with the aid of a stern will and an iron constitution, rather than that there was any physical idiosyncrasy which made sleep any less of a necessity. An indication of this is to be found in the stories about Napoleon Bonaparte. It was told of him that he never took more than four hours' sleep out of the twenty-four, and it is very probable that during long periods of excitement or anxiety he may have kept up this habit. There is no record of those occasions on which he may have made up his arrears of lost sleep, but it is recorded that he lost one battle because outraged nature refused to allow him to defy her any longer. The Duke of Wellington was another soldier who trained himself to do with so little sleep that he seemed a marvel, but there is no reason to doubt that he, too, made up his arrears at times when he was not liable to public attention. There is no question that persons of strong constitution can rob themselves of sleep for long periods; not entirely, to be sure, but in part; and nature will repair the damage afterward without exacting full payment. For example, a man who needs seven hours of sleep out of twenty-four may go for a week on two or three hours, or less, and by taking six or seven hours of extra sleep afterward he can restore his strength fully. At least strength is restored so far as may be judged. Whether such an experience involves a net loss of vital power and actually shortens life is a question that can never be answered. Undoubtedly a frequent repetition of the feat would do so, but the recuperative powers of nature are such that no evil effects are perceptible after one or two experiments in the case of a strong, healthy person. Another curious thing may be noted in this connection. Not only may a healthy person cheat nature thus, achieving a net result of, say, twenty or thirty waking hours in a week that ought, normally, to be spent in sleep, but an invalid may often do more. Every physician knows that in certain cases of illness, insomnia is an annoying and often a dangerous sympton. Yet it often occurs that the patient may go for weeks, months, or even years, with a totally insufficient allowance of sleep. In such cases, of course, there is a distinct drainage of vital energy, but when the illness is followed by recovery, the same marvellous tendencies of nature seem to restore a normal condition without requiring the sleep to be "made up." As was said, the requirements of individuals differ in regard to the time that must be spent in sleep. A vast deal of nonsense has been talked and written about this. Benjamin Franklin wrote "Six hours' sleep for a man; seven for a woman, and eight for a fool." Some wise man afterward wrote that Franklin, according to his own saying, must have required eight. It was a hard answer, but no more than any one ought to expect who undertakes to lay down a general rule. Undoubtedly what is called temperament has much to do with this requirement. A nervous temperament, so-called, very often calls for less sleep than a bilious or sanguine, and an explanation of this has been offered which seems absurd and which yet may have some foundation in fact. It is said that nervous people sleep faster than others, just as they do everything else faster, so they accomplish as much sleeping in six hours as others do in, say, seven hours. Habit probably has more than temperament has, to do with the amount of sleeping that is done. Any one who has lived both in the city and in the country knows that country people sleep more, as a rule, than city people. Whether they live longer by reason of this is a question not easy to answer. Too much sleep doubtless tends to stupidity, as too little tends to an abnormal acuteness of the faculties which sometimes becomes insanity. How much is too much or too little can only be told by individual experience. Doctors have emulated Franklin and have said, usually, that either seven or eight hours is a proper allowance; some say seven, and some eight. One saying, quoted in Hazlitt's "English Proverbs," says: "Nature requires five; custom gives seven; laziness takes nine, and wickedness eleven. "Another proverb says, "Five hours for a man, seven for a woman, and nine for a pig." None of these sayings are worth the ink it takes to record them, excepting as illustrating the priggishness of the doctors and others who originated them. As to the time at which sleep should be taken, a vast amount of additional nonsense has been uttered. Old-fashioned people are never tired of saying that "One hour's sleep before midnight is better than two after"; "Early to bed and early to rise," and other things of like import. No doubt they are the people, and wisdom will die with them, but experience shows that such sayings are entirely without foundation in fact or in good sense. Night workers must needs sleep in the day time. Soldiers and sailors are often compelled to keep "dog watches," or commit irregularities that would prove exceedingly trying to persons of regular habits. Yet no evil effects are observed to follow. To sum up, it may be said that the only practical wisdom is for the individual to determine for himself how much sleep he needs, and take it whenever he can get it. Regularity of habit is desirable in this respect as in all others, but if regularity be out of the question he will be about as well off without it after he gets used to the irregularity, provided he be careful to get his full allowance every twenty-four hours.

SANITARY MATTERS IN MICHIGAN.

At the meeting of the Michigan State Board of Health, July 12, 1892, relative to the reported presence of cholera in foreign countries, and the possibility of its being brought to this country, Dr. Baker remarked that it would be a particularly unfortunate time if cholera should soon reach Chicago or Detroit, because it tends to spread in much the same ways as typhoid fever, only with much greater rapidity, and typhoid fever is unusually prevalent in Chicago and appears to have been increasing lately in Detroit. If cholera should gain entrance to either city, so many of our people visit those cities that we might soon find cholera spread in many places throughout Michigan. This office is prepared to issue circulars, already printed, advising local health officers just how to restrict cholera.

The secretary presented the subject of a "Sanitary Day," after the manner of Arbor Day, Labor Day, etc., which had been proposed in Pennsylvania, where it was designed to have a day set apart for general and special "cleaning up." His opinion having been asked, he had expressed the view that it would be a good thing, but he thought a much more important sanitary day would be such a one as he had proposed at the last meeting of the Michigan Medical Society, namely, one provided for by a law similar to the one providing for the annual school meeting, a sanitary meeting which should determine the amount of money to be raised for public health purposes. This would supply occasion for placing facts, as to the restriction of the most dangerous diseases, before the voters who control the expenditures. School money is voted by the people after the subject has been carefully put before them. The interests of health and life of the whole people, including the children, are of more importance than the school education of the children alone. The health interests suffer because they have not been supported by the people. Dr. Baker believes they would be properly supported if facts were carefully put before the people every year at a sanitary meeting similar to the school meeting in September.

MEDICAL.

ACNE AND BLACKHEADS.

Acne is one of the most common diseases of the skin, existing either alone or in combination with *comedo*, or blackheads. Occurring about the time when puberty becomes established, it disfigures the faces of its victims for years, sometimes leaving its traces for life. The sebaceous glands of the skin are stimulated, and an increase of their secretion is the result; this plugs up with a kind of cheesy matter the delicate canals of the glands and so causes pimples. Acne appears in the form of pimples, from the size of pinheads to a bean, solid or filled with pus. It may occur in any part of the body, except the palms or soles of the feet, but its choice is the face, neck, chest and back.

When it attacks the face the forehead, cheeks, and chin are the portions usually involved. It is observed in both sexes, and during adolescence. "Blackhead" is applied to that form of acne where there is a pimple without redness or inflammation, and with a black speck or "core" in the center; this, when squeezed out, has the appearance of a small worm, but it is just the dry, blackened, secretion of the sebaceous or grease glands. If these plugs are allowed to remain irritation is apt to be set up, and chronic acne is the result.

Writers on skin disease divide acne into a great many kinds, according to the appearance and place of the eruption; for instance *Acne rosacea* is the term applied to the blossoms on a "grog nose," a kind that for some reason confines itself to the nose and the adjacent parts. But as the exact cause of the affection is better known many of the names will disappear, as the treatment is very much the same in the various kinds: soothing if there be much redness and tenderness, stimulating treatment if the pimples are hard and chronic.

Comedones and acne may be considered as almost identical as regards cause; males and females are equally liable to them, and the ages most attacked are between thirteen and thirty, though they are seen at forty-five. The frequency of acne in people with a thick skin and a sluggish circulation points to these as causes. Again cold winds, the use of irritating cosmetics, working with tar, insufficient washing, play a certain part, either by plugging the orifices or irritating the glands; but far more important is the derangement of the alimentary canal, especially constipation and dyspepsia, which are present in more than half the cases. All debilitating causes predispose to acne: anæmia, struma, scurvy. "Errors in diet and in the newly-acquired sexual powers, and hygienic sins in general, assist in causing or aggravating the attacks."

If possible, the cause should be ascertained and removed; to find what that is may require a good deal of self-searching. As youth is developing into manhood or womanhood, to those inclined to pimples on the face or back, care will be necessary not to make too great demands on the system, or to make a change in the method of life that will be too great or too sudden—too close study, too much confinement, or over-indulgence in eating or drinking. At the time of life when acne first comes on, the skin and nervous system are coming to maturity, as it were, and if too great a burden is suddenly thrown on them they may show it by eruptions, or nerve troubles.

The treatment must be both general and local, and these will require to be carried out for some time. If possible, the cause should be ascertained and removed by hygienic dietic and medicinal means. These should also aim at the general invigoration of the patient, especially the removal of digestive and other derangements; cold sponging of the whole body every morning, as much out-door exercise as the patient's strength admits of, at the same time avoiding, or protecting the face against cold winds, and regular and early hours are generally necessary. The diet should be unstimulating, and where there is the least tendency to indigestion, highly-seasoned dishes, pastry, sugar, and indigestible food generally, together with beer and other stronger alcoholic drinks, should be avoided altogether. Tonics, especially iron, arsenic, and strychnine, will be useful.

The local treatment, says Dr. M'Call Anderson, of Glasgow, is that upon which our chief reliance must be placed, though it must be allowed that acne is a troublesome complaint to deal with successfully; and, as Hebra has remarked, the true conclusion to be drawn from the declaration of great surgeons that it is ridiculous to trouble oneself about the cure of "pimples," is not that this disorder is insignificant or harmless, but purely and simply that these writers really do not know any certain remedy for it, and so are accustomed "to hide their ignorance under an affectation of superiority." There can be do doubt that in the majority of cases patients can be greatly improved by treatment, and although an absolute cure cannot be anticipated with confidence, it is cruel advice to tell a young lady who suffers from what she usually terms as a bad complexion that the eruption should be left alone, as it will disappear of itself when she gets a little older; for, apart altogether from the fact that the disfigurement can be much ameliorated by treatment and the disease kept in check, we can, if consulted in time, avoid in great measure these disfiguring scars which never disappear.

The first thing to be done is to remove the cheesy-plugs by squeezing them out with the fingers or some blunt instrument, such as a watch-key. Wash the parts every night and morning with very hot water, and afterwards apply friction with a rough towel (unless there be, as there sometimes is, much inflammation about the pimples). Vapor and Turkish baths with thorough shampooing are also useful. The following lotion recommended by Hebra is highly stimulating:

Take of

Soap viridis	2 ounces.
Rectified spirits of wine	1 ounce.

Dissolve, and strain through muslin, and then add

Spirits of lavender	2 drachms.

The spots should be bathed with this night and morning. The remedy, however, which enjoys the greatest reputation is sulphur in some shape and form.

Take of

Sulphur	1 drachm.
Glycerine (Price's)	1 "
Cold cream	1 ounce.

Mix. To be applied freely every night short of causing pain or inflammation.

Another lotion which is much appreciated in Germany is the following:

Take of

Sulphur precipitated	2 drachms.
Camphor	10 grains.
Gum mimosa	20 "
Lime water	2 ounces.
Rose water	2 "

Mix. Shake the bottle, and apply at bedtime, and in the morning remove the sulphur without wetting the skin.

The use of any remedy must be intermitted if it inflames the skin, and then begun again.

In stubborn cases the surgeon should paint the pimples with acid nitrate of mercury, or with a mixture of tincture of iodine 1 drachm and liquor ammonia 2 drachms.

For acne of the back, friction with a towel dipped in sea-water is beneficial.—*Popular Medical Monthly, London.*

AMERICAN PUBLIC HEALTH ASSOCIATION.

[Preliminary Circular.]

The twentieth annual meeting of the American Public Health Association will be held at the City of Mexico, Mexico, November 29, 30, and December 1, 2, 1892.

Members and representatives from all parts of the United States and Canada have already expressed their intention of attending this meeting, not only because it will probably be the largest and most important ever held, but also to enjoy the pleasures and delights of an excursion trip to the "Egypt of America." The secretary has recently been in Mexico, and made full arrangements to secure a large and successful meeting. The Mexican government has interested itself in the work, thereby assuring the success of the meeting. All the details are in the hands of federal officers of the Republic of Mexico. The general government has requested every State to send delegates. Invitations have also been extended to Central and South America.

The session will continue four days, and owing to the expected large number of papers the Association will, probably, for the first time, do its work in sections. Prominent sanitarians and scientists from the United States, Canada, Mexico, and the Central and South American republics, will take an active part in the meeting.

"THE JERKS."

The most remarkable manifestation of the great religious movement which swept over this country just before the war of 1812 was the physical and nervous disorder known as "the jerks." The jerks took their name from the fact that the whole body was affected, and that in a singular fashion. The arms and legs would be thrown about, apparently by a force beyond control of the individual; sometimes the head would be thrown backward and forward with great apparent violence, while occasionally the muscles of the entire body would be affected, the individual would fall upon the ground and flounce like a fish.

The disorder was epidemic, frequently affecting great numbers at a time, and attacked alike the irreligious and the pious, those who believed in it and those who did not. A case is on record as occurring in Tennessee, where a slave owner, a man of great wealth and prominence, and irreligious, called his slaves together one Sunday morning when a camp meeting was in progress near by, and announced his deliberate intention of horse-whipping any one of their number who took the jerks.

"It is all imagination," he said, "and I'll whip any one of you that takes it within an inch of his life."

He went to the camp meeting, and while conversing with a friend in the outskirts of the ground, was told that one of his negroes had the jerks.

Seizing his horsewhip he hastened toward the spot, and when half way was himself seized by the jerks. The only relief obtainable from the attack was to seize a sapling or tree and hold on with both hands till the fit had passed away. The jerks usually left their victim much prostrated, and in more than one instance death ensued during an attack, from a dislocation produced by the violence of the convulsions. The jerks lasted from 1810 until about 1816 or 1819, and then gradually disappeared; though in remote country districts an occasional instance, though rarely, occurs.—*St. Louis Globe-Democrat.*

PULSE OF ANIMALS.—The pulse of the horse can be most easily detected upon the lower jaw, just forward of the curved portion, where the artery crosses the cord and bone at the same time; it may also be felt, and often its pulsations seen, upon the long ridge above the eye, or may be found inside the elbow. In health it beats forty times a minute, and when more rapid it denotes fever or excitement. If slower, weakness. In cattle it may be found over the middle of the first rib, or in the artery upon the ankle joint and should have from fifty to fifty-five beats a minute.

In sheep it is easiest found near the middle of the inside of the thigh, and should beat seventy-five to eighty times per minute. Although not included in the query, we add that the rapidity of breathing is often as indicative of disease as the pulse, and while the horse naturally breathes nine to twelve times per minute, cattle vary from eleven to fifteen times, and faster or slower indicates nearly the same thing as it does in the pulse unless it results from overexertion.—*American Cultivator.*

EGGS FOR DYSENTERY.—The egg is considered one of the best remedies for dysentery; beaten up lightly, with or without sugar, and swallowed at a gulp, it tends, by its emolient qualities, to lessen the inflammation of the stomach and intestines, by forming a transient coating on these organs, enables nature to resume her healthful sway over a diseased body. Two or at most three eggs per day would be all that is required in ordinary cases; and since eggs are not merely medicine but food as well, the lighter the diet otherwise, and the quieter the patient is kept, the more certain and rapid is the recovery.

THYMOL FOR THREAD-WORMS.—Surgeon-Major E. Lawrie reports in the *Lancet* the cure of two cases of chyluria dependent on filaria (thread-worms) in the blood by treatment with thymol. It was administered internally in doses of one grain every four hours, gradually increased to five grains. This discovery is the more important because there has been hitherto no known remedy for the disease.

THE DOCTOR'S BILL.—Put off the presentation of your bill for a year, and the patient will conclude that your services were worth but little, and that you knew it.—*Ex.*

GOOD SAMARITAN, BAD DOCTOR.—He who works for love may gain the reputation of a Good Samaritan, but good Samaritans are not all good doctors.—*Ex.*

HYGIENIC.

THE USE AND ABUSE OF SOAP.

A DISSERTATION ON SOAP.

[By Hester M. Poole.]

Were that chemical affinity to be destroyed which binds fat and alkali together, the housekeeper might well sit down in dumb despair. Happily, it is as immutable as any other one of Nature's beautiful laws, and woman rightfully regards soap as her truest friend and servant. Apt to under-value, waste or misuse that which is so common, if so necessary, it may be well for us to spend a few moments in examining the pedigree and condition of our humble servitor. No one needs to be told that fats uniting with an alkali solution combine to form that peculiar jelly-like substance which, when hardened and dried, we waste so remorselessly.

It is accepted as we accept the air, the sunshine and the earth. I, for one, never realized until very lately, that beneficent order by which waste productions are converted into a necessary aid to civilization.

A visit to a large soap factory rebuked the old indifference, and awakened interest in this valuable household adjunct. There were great pans or tanks of iron set in brick, the largest of them holding something like one hundred thousand pounds of molten soap, casks of fresh fat from rendering houses, cylinders of alkali, steam pumps, pipes and coils, and frames of solid soap—concentrated cleanliness cooling in their places. These pans, where the materials are knit together, resemble so many artificial volcanoes filled with molten lava, steaming and unctuous, but the fumes in place of being sulphurous, are pungent and pleasant. However it may be carried on at other manufactories, at this place the process is cleanly; a delicate dress might be worn by a visitor from one end of it to the other without danger of stain. The neatly clad girls whose skillful fingers wrap the cakes and pack in boxes for shipping are as neat and trim as one would ever wish to see.

In examining the process of soap making, we learn that there is soap and soap. The real article free from adulterations, injurious or useless, is never the cheapest. Poor brands contain pulverized marble, talc, or other mineral powders to give increased weight. Marble dust costs less than a half-penny per pound, and sometimes each pound cake contains fully one-quarter of its weight of mineral matter.

The editor of a scientific magazine not long since analyzed a certain brand which had attained some degree of popularity for the toilet and had received the indorsement of several celebrated persons. He found in it a large admixture of fine sand. His process is a long one, but any housekeeper who chooses can test the quality of soap in this simple manner: Shave an ounce of soap and put in a small bottle; nearly fill with alcohol and place in hot water till the contents are dissolved, taking care to have no possibility of ignition. Set it away to cool and thicken; if no sediment appears the soap is good.

It is a better way to buy only the favorite brand of a well-known manufacturer. A noted chemist says: "The label and trade-mark of a known, reliable and responsible manufacturer, is the best protection the public can have against frauds, imitations, and counterfeits. When the manufacturer uses some fictitious name on a fancy brand, no matter how attractive the soap may be, beware of it. Its ingredients, disguised under fancy shapes and delicate perfumery, may be repulsive or noxious."

A strong, rank soap will also be avoided by the prudent housekeeper; whatever attacks living tissue rendering the fingers shrivelled and sore, is ruinous to garments and fabrics. In such cases the alkali, not thoroughly combined with the fat, is left free to eat into the clothing. And it is evident that what is too harsh for vegetable fibre is not fit for contact with the skin.

For toilet purposes, sweet selected material is necessary. The oils of the olive, the palm and the cocoanut, are mingled with beef marrow, tallow or refined lard and these are combined with alkali. Those tropical vegetable oils render the soap mild as well as hard and give it that soft, silky quality so agreeable to feel. Exactly when this important article first came into use among civilized nations it is impossible to say, but Pliny the Elder gave the first account of it over eighteen hundred years ago. Imagination refuses to conceive the condition of the human race prior to a knowledge of its properties. Perhaps vegetables, like soap-berries, rushes and tree-bark, produced similar effects.

Among the more expensive as they are among the best, are the true Castile or olive oil soaps, but they are now adulterated and imitated. Modern art is perfectly capable of simulating that mottled appearance which was formerly so much valued, by the addition of mineral colors introduced during the process of hardening. Originally it was supposed that no excess of water could be held in it as the substances which imparted the color, being heavy, would sink to the bottom unless held in suspension by its thick condition. And so, like many another myth, a belief in the infallible purity of the old Castile favorite has vanished. It is, however, a comfort to know that our own country manufactures just as good soap as ever came across the water. Almost all the best known old brands belong to this category. This is so generally accepted that white soda soap figures internally in pill mixtures, the olive or almond oil uniting with caustic soda giving the best article in use. In case of poisoning with mineral acids it affords a safe and ready antidote, if antidote be possible.

The opinion that of such a necessary article as soap for the toilet one cannot use too much, is an opinion which late researches in science disprove. The attraction of the alkali in it for the oil of the skin, as well as for its unclean accumulations, constitute its cleansing property. Out of the seven million pores through which nearly two pounds of poisonous exhalation daily pass from the adult, come enough materials in a short time to produce filthy and fatal diseases. An eminent physican has declared that "if the skin be moderately active, three or four days suffice to form a layer which may be compared with a thin coating of varnish or sizing." As this accumulation increases and decomposition follows, it is not necessary to describe the result. What agency but soap can remove it?

Many good authorities declare that water alone is sufficient, except at rare intervals. There are oil-glands as well as excretory ducts, and for no idle purpose has nature produced these tiny human oil-wells. Inunction, or the external use of oil, has a recognized place among the prescriptions of some famous modern physicans who, in this way, seek to restore that necessary property of which the body has been deprived by the excessive use of soap or by disease. They claim that it enables the patient to resist cold, that its nutritive qualities convey heat to those organs which require it, that it gives a sense of exhilarating freshness, and that it is not only soothing in cases of nervousness and depression, but it is capable of strengthening weak lungs. For this purpose almond oil, cocoanut, olive oil or vaseline are daily applied by the aid of vigorous rubbing. To all such treatment, and in all cases where inunction is not required, the daily application of soap is injurious.

"What uncleanly habits!" some one exclaims. Not so. Plenty of soft water, a coarse wash-rag, hand friction and a Turkish towel, with soap applied at rare intervals, and the skin should retain the delicate smoothness of an infant. Those milk baths indulged in by the ancient Roman emperors and empresses owed their emollient properties to the oil contained in the milk. Every old nurse knows, too, that weakly children are sometimes injured by too frequent ablutions. Dry rubbing is often the safest opiate for a nervous little one, answering many of the purposes of soap.

An eminent physican and scientist lately told me that he seldom used soap in his daily bath. "It makes the skin dry, hard, and harsh, and renders me much more liable to take cold through any changes of the weather," said he. "At the same time, no rule can be given for the use of soap. Some persons secrete oil much more readily than others, and to such soap is more of a necessity," and he spoke much upon the desirability of using a pure soap or none at all.

Attention is called, but all too infrequently, to the inception of disease from the use of impure soap. Contrary to the usual opinion, that which is made from decayed fat is not neutralized by the alkali it contains. In a late number of a medical journal a physican makes several startling statements in regard to cases of disease which had come under his observation, the seeds of which had been absorbed through abrasions of the skin, or through open pores during perspiration. Not only have fever and diphtheria germs been absorbed in this way, but painful and dangerous diseases of the cuticle and the blood have followed the use of impure soap.

BREAKFAST APPETITES.

Some people are never hungry at breakfast time, and others make breakfast the heaviest and best meal of the day.

It often happens, however, especially with persons who have a "cold dinner" or a light lunch at noon, that supper is made an unduly hearty meal, resulting in lack of appetite for the morning repast Pehaps a majority of people regard breakfast with more or less indifference and lack of appetite.

This condition of things is not an unmixed evil. The number of people who can roll out of bed and consume a hearty meal at once, must always be limited to those of exceedingly robust digestion. Most of those who work in shops and factories must have breakfast at so early an hour that no opportunity is given for preliminary exercise sufficient to start the dormant secretions, and a hearty meal with a stomach full of the night's mucus results in serious indigestion. Consequently the average individual swallows a cup of coffee, a roll or a doughnut and sallies out.

Under the circumstances probably this is better than the hearty meal. But the trouble lies in the long interval between breakfast and dinner. If a glass of milk or a small sandwich could be supplied at the time when real hunger and subsequent faintness comes on, a thing which so often happens between 9 and 11 o'clock (for those who have had a 6 o'clock breakfast) one would hardly care if breakfast did consist chiefly of the traditional cup of coffee.

For those who can control their meal hours, and who are not obliged to retire so late as to make late rising imperative, attention to two or three apparently trifling things, will almost invariably insure a good breakfast appetite.

Do not eat heartily very late in the evening. Rise half an hour or more before the breakfast hour and drink a glass of cold water. This helps to dissolve and wash away the mucus, and by distending the stomach prepares it to receive food later on. Engage if possible in some light work, chores or housework, in the few minutes before the meal is ready. Observing these simple things you will find yourself in a condition to digest even oatmeal unless your system is radically out of gear.

Perhaps the greatest sufferers from lack of adequate breakfasts are school-girls. Out of ninety girls who were questioned one morning in one of the public schools, it was ascertained that twelve had eaten no breakfast. Of these twelve, six had brought no luncheon; the other six had cake, pie, and pickles, or similar indigestible food.

In a class of forty girls there were always from one to five who came to do a hard day's work on an empty stomach.

In many large private schools in New York and other large cities it is customary to provide a warm lunch for the pupils so that each girl is obliged to eat

ADULTERATION.

ADULTERATED FOOD IN CONNECTICUT.

EXTRACTS FROM THE REPORT OF A. L. WINTON, JR., OF THE AGRICULTURAL EXPERIMENT STATION AT NEW HAVEN.

The following is interesting reading:

BLACK PEPPER.

Analysts in all countries have found pepper commonly adulterated and with a great variety of material. Among the substances which have been reported are wheat flour and bran, linseed meal, cocoanut shells, mustard husks, sawdust, olive stones, charcoal, cayenne, etc.

Most of these are used to increase bulk, care being taken to have the mixture the proper color; cayenne, however, is added to re-inforce the pungency, which has been diminished by dilution. The grinding and mixing of so-called "pepper and spice mixtures" is an extensive industry in our large cities, many thousand pounds of cheap material being used for this purpose annually.

Microscopic examinations of thirteen samples of black pepper revealed the presence of foreign matter in nine. The adulterants detected together with percentages of ash are given in the following table:

SAMPLE NO.	ADULTERANTS DETECTED.	ASH	PRICE PER ¼ LB.
19	Buckwheat, Cracker Crumbs, Indian Meal, Cayenne	4.21	10c
20	Buckwheat. Wheat Flour, Charcoal	5.41	10c
21	Buckwheat, Wheat Flour	4.50	10c
22	Buckwheat, Charcoal	13.65	10c
23	Pure	5.55	10c
24	Cracker Crumbs, Buckwheat	4.13	6c
25	Buckwheat, Charcoal	4.06	10c
26	Cayenne	10.99	10c
27	Buckwheat, Ground Beans, Indian Meal, Charcoal	19.82*	5c
28	Wheat Flour, Buckwheat, Charcoal	4.17	10c
29	Pure	10.82	8c
30	Indian Meal, Wheat Flour, Buckwheat, Charcoal	3.60	10c
31	Pure	4.24	10c

*14 75 insoluble in acid.

No. 23 was in a tin box, the remainder were in bulk.

All the adulterated samples contained some product from buckwheat, consisting chiefly of hulls and seed coats, but also containing some of the starchy portion of the seed—probably bran or middlings separated in the manufacture of buckwheat flour. In potash preparations the four characteristic layers of the seed envelope were evident.

Charcoal was detected in five of the samples. Whether this was ordinary wood charcoal or that obtained by roasting cocoanut shells, etc., could not be ascertained.

Cracker crumbs were isolated under a dissecting lens. The presence in these of wheat starch granules distorted by baking furnished confirmatory evidence.

The same quantity of cayenne in No. 26 may be explained by the fact that the dealer used the same scoop for all his spices. Otherwise the sample was pure. No. 27 contained nearly 20 per cent of ash, three-fourths of which was sand and red clay, and must be regarded as weighting. Nos. 26 and 29, although containing rather high percentages of ash were otherwise pure.

WHITE PEPPER.

Four samples of white pepper have been examined with the following results:

SAMPLE NO.	ADULTERANTS.	ASH.	PRICE PER ¼ LB.
32	Pure	2.20	10c
33	Wheat Flour	3.62	10c
34	Wheat Flour	1.83	12c
35	Pure		

MUSTARD.

A large part of what is sold in retail trade as ground mustard consists of mustard with more or less wheat flour or some other starchy matter colored yellow with turmeric. Occasionally poisonous pigments such as chrome yellow or Martius' yellow are said to be used, but as a rule the mixtures contain nothing injurious to health, the objection to their sale as mustard being that they are cheaper substitutes sold with the purpose of deceiving the purchaser. The New York State law, while allowing the sale of such mixtures, requires that the package be properly labelled.

Of nineteen samples examined, only two were found free from adulteration.

Particulars are given in the following table:

SAMPLE NO.	ADULTERANTS.	ASH.	PRICE PER ¼ LB
1	Pure	5.82	10c
2	Wheat Flour. Turmeric	6.42	10c
3	“ “	4.85	10c
4	“ “ Turmeric	*20.05	10c
5	Rice Flour “	5,35	10c
6	Wheat Flour “	5.97	10c
7	Pure	5.50	5c
8	Wheat Flour. Turmeric	10.57	10c
9	Rice Flour “	4.75	5c
10	Wheat Flour “	7.00	12c
11	Rice and Wheat Flour. Turmeric	6.17	10c
12	Wheat Flour. Turmeric	5.18	10c
13	Rice Flour “	5.32	8c
14	Wheat Flour “	6.62	10c
15	“ “ “	5.90	10c
16	Pure	5.10	10c
17	Wheat Flour. Turmeric	4.00	10c
18	“ “ “		10c
19	“ “ “		15c

* Chiefly gypsum.

No. 4 was not only adulterated but also was infested with myriads of mites.

No. 12 was put up in a tin box and labelled as a "mixture."

No. 19 was purchased of a dealer believed to be reliable, for pure English mustard.

FLEA EXTERMINATOR.—Place on the floor at night sheets of sticky fly paper with a small piece of raw beef in the centre of each one.

HONEY AND ITS ADULTERATIONS.

PROFESSOR WILEY'S ANSWER TO C. F. MUTH.

UNITED STATES DEPARTMENT OF AGRICULTURE,
DIVISION OF CHEMISTRY,
WASHINGTON, D. C., July 8, 1892.

Editor American Analyst.

DEAR SIR:—Permit me to thank you for the copy of Mr. Muth's letter of 27th ult. which you submitted for my inspection.

I fear, in the circumstances, there can be no further controversy between Mr. Muth and myself as he admits all that I criticised as objectionable in his way of disposing of his labels. In his letter to you of May 26 he say, "The honey we produce amounts to comparatively nothing;" in his letter of June 27 he says, "We produce from eight to ten thousand pounds of extracted honey in a good season " On account of the large amount of honey which he produces himself he justifies the use of his labels when applied to materials not produced by himself. He even admits that he sells his labels with his jars so that anybody can use them for any kind of honey he sees fit. In view of this fact it seems rather strange that Mr. Muth should denounce me because samples of adulterated honey, bearing his labels, are found in the market. It is simply a matter of Mr. Muth having admitted that he not only sells honey not produced by himself as his own, but sells his labels to other people, and it seems to me very bad judgment for him to object to the conclusion of the most competent and able chemists in the country when they find samples of honey with his label adulterated.

Mr. Muth also misunderstands my meaning in my letter to you, published in your issue of July 1, where I say, "I doubt very much whether Mr. Muth is justified in selling honey which he purchases in California as the product of his own Italian apiary." I did not assert, as Mr. Muth says, that he did purchase honey in California; of course I do not know where he purchases his supply of honeys. The term "California" there is understood as any place where he purchases supplies not his own. I put in the word California because large quantities of California honey are sold in the Eastern markets. I am very sorry that Mr. Muth persists in misquoting and misstating what I said about the samples of honey which I received from him. I never made the report which he mentions at any place, nor in the presence of Prof. Cook, nor Mr. Thos. G. Newman, or any other gentleman. I never made but one report about Mr. Muth's honeys and that report was the one published in the *American Apiculturist*, and re-published in Bulletin 13, Part 6, page 108 et. seq. Mr. Muth's persistency therefore, in saying that I pronounced his honeys adulterated is a species of folly which it is impossible for me to understand. Until Mr. Muth is willing to make the *amende honorable* for his misstatement and for his persistence in it, all further controversy with him, on my part, must cease. Mr. Muth closes his letter with the statement that "The adulterator is the natural enemy of every honest producer and dealer," to which sentiment I heartily subscribe. I may add, that a person who sells his labels to other dealers for the purpose of enabling them to sell an inferior honey, on the strength of the reputation of Chas. F. Muth & Sons, is also doing as great an injury to the honest trade in pure honey as the adulterator pure and simple.

I am, respectfully,
H. W. WILEY, Chemist.

COCOAS AND CHOCOLATES.

[Reprinted by special request.]

The AMERICAN ANALYST has on several occasions published analyses of various cocoa preparations on the market, and has invariably given praise where praise was due, and warned the reader as well against such manufactures as these analyses showed to be less wholesome or harmful. At that time those makers of cocoas whose product we found to be deserving of criticism became angry, called us hard names, and flatly denied the correctness of our analyses and the justice of our strictures, but all of them failed to advance any proof of their bare assertions. We are glad to be able now to produce the report of the chemists of the Department of Agriculture of the analyses made of cocoa preparations by that department, which has just been published, and which corroborates every word we have said. In passing, we may also add the remark that the public seems also to have found out that we were correct, for the sales of those cocoas we found to be bad have fallen off to such a large extent that one house seems to have retired from this market, and the other is keeping up a mere struggle for existence in the vain hope that by spending large sums in advertising, and appealing to American snobbery, they may be able to live down the truth and force their worthless foreign-made stuff on the American public at double price. It may be remembered by our readers that at that time we took especial occasion to warn them against the so-called "Holland Cocoa." In this late report we find the chemist endorsing this view in these words: "The desire to make an easily digestible cocoa preparation without removing the fat, led to the preparation of the so-called Holland cocoa. (It is, however, not certain that the object is in reality accomplished.) By many it is stated that the alkalies hinder the digestion by neutralization of the acid of the stomach; and, besides, by saponification of the fat, because experience shows that the soap is not agreeable to the stomach. Contrary opinions are asserted from the standpoint of sanitary police."

Dr. Stutzer, the celebrated German food chemist, is quoted in this report as saying of this Holland process, that the addition of potash, soda, or ammonia, is not only unnecessary, but cocoas so prepared showed the most unfavorable results.

The report also says that there is probably no more misleading or more abused term in the English language than the term "soluble cocoa." No cocoa in the market contains a very considerable percentage of matter soluble in water, unless the material so dissolved is foreign soluble material that has been added during the process of preparation. The term seems to be used to denote a preparation that allows none of the insoluble matter to deposit from the beverage prepared from it. This purpose may be accomplished in two ways—the material may be so finely divided that a very long time will be required for its deposition; or foreign substances (as starch, or sugar) may be added to render the liquid of so high a specific gravity, or so pasty, that the insoluble matter will not deposit. The first method is decidedly to be preferred; it accomplishes the object in view and puts the preparation in better condition for the action of the digestive juices. (It is this first method which is employed in the Walter Baker & Co. preparations.) The use of alkalies for this purpose is quite generally regarded as injurious, and the investigations of Stutzer show that the effect is opposite to that desired. He also states that these substances are used to aid the opening (*aufschliessen*) of the beans and not for the purpose of increasing the digestibility of the preparation.

So far we have closely followed the report in generalities, but now we shall have to confine ourselves to a brief resumé of what the report says of various special brands. In our former article we stated that the best preparation of cocoa and cheapest at the same time was Walter Baker & Co.'s. We find that we are also backed up in this opinion by this report. Of the preparations of Walter Baker & Co., which were bought at various stores in Washington, D. C., analyzed and reported on, there are the following, numbered and described as follows:

1. Baker's Chocolate.
11. Baker's Vanilla Chocolate.
37. Baker's Cocoa.
38. Baker's Breakfast Cocoa.
43. Baker's Premium Cracked Cocoa.
56. Baker's Broma (a combination of cocoa with other ingredients).
59. Baker's Racahout des Arabes (a mixture of chocolate, starch and sugar).

The report of the analyses of these various preparations shows that No. 1, Baker's Chocolate, contains 49.81 per cent of fat, no sugar, a low amount of ash, no alkali, and is the best among the six samples of plain chocolates examined.

No. 11, Baker's Vanilla Chocolate, was found entirely free from foreign starches, flavored with genuine vanilla, contained 26.03 per cent of fat, normal amount of ash, and no alkali, a fine specimen of sweet chocolate.

No. 37, Baker's Cocoa, contained no added starch, 32.52 per cent of fat, no sugar, normal ash, and no alkali; it was simply a strictly pure, well-prepared cocoa.

No. 38, Baker's Breakfast Cocoa, contained no added starch, 25.83 per cent of fat, no sugar, no alkali, but was just what it was represented.

No. 43, Baker's Cracked Cocoa, contained 50.85 per cent of fat, or just the normal amount of fat contained in the best cocoa, and the ash was normal.

No. 56, Baker's Broma, which is sold as a compound, was found to be such, containing 23.62 per cent of fat, and not any unhealthy ingredients.

No. 59, Baker's Racahout des Arabes, a chocolate confection, was also found entirely free from anything injurious, and a very fine specimen of this kind of preparation

It will thus be seen that again have the various preparations of Walter Baker & Co. come out triumphantly from the fairest but severest test made under the law and by the national government, and thus our previously expressed high opinion is vindicated.

OLEOMARGARINE IN MARYLAND.

Judge Bond, of the United States Court of Baltimore, has rendered an important opinion in the case of Chas. E. McAllister, alleged agent of Braun & Fitts, oleomargarine manufacturers of Chicago, who sought his release from the custody of the State authorities. Judge Bond holds that the arrest was illegal and discharges the prisoner. Mr. McAllister was arrested under the Maryland law relating to the sale of oleomargarine.

The Judge, in reviewing the case, said: That a person may import an article from a foreign country or one of the States of the Union and sell it in the condition which it was imported, is not to be disputed now after a long line of decisions by the Supreme Court. A State may regulate the sale and storage of articles dangerous to the health of the city, but it cannot prohibit the importation. The laws of the United States recognize oleomargarine as a mercantile article. Being such, while yet a State may regulate its sale, it cannot prohibit its importation. The statute in question does this and is unconstitutional in this respect and void. The petitioner is discharged.

REPORT OF THE STATE DAIRY AND FOOD DEPARTMENT OF MINNESOTA.

The report of the State dairy and food commissioner for the period of nine months ending April 1, 1892, has just been published. It is replete with valuable information. That portion of it relating to the various alum baking powders, the AMERICAN ANALYST has already published in full. Speaking of vinegars it says:

"The one instance referred to is that of the Alden Vinegar Company, of St. Louis, Mo. They have invariably tried every way to flood the market of this State with a vile concoction, which they unblushingly denominate vinegar. It has proved in 99 cases out of every 100 that have been analyzed by our chemists, to be spurious, illegal and falsely branded, and has in almost every instance been misrepresented. We have written them regarding their goods, and have received no satisfaction. But we are happy to state that we have condemned so much of the vile stuff, which has remained at the various railroad depots throughout the State subject to their order, that they have practically withdrawn their trade from the State, and a barrel of Alden vinegar on sale in this State at the present time is a rare thing.

"The vinegar as now found in the market is far superior to that which was formerly sold throughout the State.

"In looking over the results of our investigations one fact must be borne in mind, viz.: All vinegars colored now found in the market are reported as illegal. Another fact we have proved by analyses, that 'Alden's' vinegars are not as represented to the dealers, and invariably they are found to be deficient in acetic acid. These two facts coupled show a larger per cent of illegal vinegars on the market, did not these conditions exist."

It strikes us that this warning should be heeded also in States where there either are no vinegar laws or where such laws are not executed; the public does not want to buy such stuff, and the honest grocer should not offer it for sale.

While we do not agree with the commissioner in his opinion of cottolene nor think it wise to pass prohibitive laws against healthy and honest food substitutes, we quote what he says of cottolene and the Minnesota legislation on the subject:

"The sale of cottolene or lard substitute has recently received a severe backset at the hands of our State Supreme Court, in which the law that requires that it shall be plainly branded and sold with reference to its true character, and also that where used in hotels, restaurants, etc., that it must be plainly printed on the bill of fare, or on notices posted conspicuously upon the walls, to the effect that the food used is prepared with this compound, the knowledge of which perceptibly affects the trade, and with the Supreme Court's decision, that the constitutionality of the law is sustained, this commodity will enter the list of the 'has beens.'"

About baking powders it says:

"All unlabeled samples of baking powder found by the inspectors were collected and submitted for examination as to their character. A total of ninety-eight samples were received of which eight proved to be tartrate or tartrate and phosphate powders, and ninety to be either alum or alum and phosphate powders. Of the ninety powders which were found to contain alum, one was labeled in accordance with the law and eighty-nine were without such label."

HOUSEHOLD.

THE FAMILY WASHING.

HOW TO DO IT PROPERLY AND WELL.

[By Mrs. J. G. Baker.]

What thing is more to be admired than snow-white linen, and why should the art of washing be neglected and forgotten in these days of steam laundries and the higher education of women? Should it not be possible to train some, out of the enormous number of women who wish to earn their daily bread, to do washing as it should be done; to be most careful lest any spot should soil the precious whiteness, to guard most carefully against any ironmould, and never to rest satisfied until every speck of dirt has vanished, and the color is pure and clear and undefiled.

Some of us have memories of whitewashed country cottages and farmhouses, whose porches are covered with red and pink roses, and where the scent of newly-mown hay enters the latticed windows, and the fair daughters of the house superintend the family wash, and with spotless fingers fold and lay in the oaken chest the snow-white linen, and beside it bunches of lavender and rosemary. Are these things all passed away? Is the linen all sent to the laundry, and are the daughters all to learn French and the pianoforte, so that the homely arts come to be neglected, and are we sure that the change is all for the better?

RULES.

"In all labor there is profit; but the talk of the lips tendeth only to penury."

—Proverbs xiv: 23.

(1) Let abundance of clean water be used.

(2) Let no nails, tins, nor iron of any kind be near linen on the washing day.

(3) All nails used in the washtubs or kettles must be wooden ones.

(4) Use pegs without tin fastenings.

(5) Use an earthenware jug for taking water out of the boiler.

(6) Use a wooden stick to push the linen into the boiler and to lift it out.

(7) If the boiler is made of galvanized iron, boil the linen in a bag to prevent ironmould, by the articles touching the sides.

(8) Keep the lines, pegs and props clean.

(9) Never put blue in the boiler; it causes the linen to be of a muddy color.

(10) Some laundresses use a grooved board on which they rub the linen. Some use a brush; and a great variety of powders are sold for dissolving in the water; but if rain water can be procured, a little soda put in the boiler with some soap when the white linen is boiled is all that is necessary, but it will destroy the color of almost every colored article—and turn white flannels yellow.

(11) Ox gall is frequently mixed with water in washing woollen dresses, and is particularly useful for things of a green color.

(12) Let the fire be quite out before emptying the water from the boiler.

(13) Take out ironmoulds by moistening the stain with warm rain water, and then rubbing on it salts of lemon, and allowing the stain to remain in the steam of boiling water for some minutes. As salts of lemon is poison, it is well to keep a special vessel for this use. It is necessary to be most particular about ironmoulds, as one article that has ironmould on it will ironmould another that comes in contact with it when wet.

(14) If an article when drying out of doors touches the ground and is soiled, the part must be washed at once in clean water.

THE WASHING DAY.

"An hour in the morning is worth two at night."

The object to be aimed at is to get the linen perfectly clean and white and then to get it dried and finished as quickly as possible, not to keep it hanging about from day to day losing its freshness and whiteness and looking disorderly. This end will be attained if the following directions are strictly adhered to, but should the linen lose its whiteness from being dried indoors or from any other cause it will be best to lay it on the grass a night or two in damp frosty weather if possible.

Better than any chemicals or sanitary laundries are the hands of the intelligent, industrious housewife, have she but abundance of pure water and soap and the fresh breezes of heaven. To prepare for washing it is well, the day previous to the washing day, to put a little water in the tubs to find if they leak. Boiling water most quickly stops any leakage as it causes the wood to swell quickly. Then nearly fill them with tepid rain water and dissolve in each tub a piece of soda about the size of a walnut. In the first tub soak laces, muslins, white pocket handkerchiefs, collars, cuffs, and similar articles; put them into the water, then rub soap on the parts which are most soiled, and rub together a little and leave in the water. In the second tub soak tablecloths, searching for the soiled places before wetting them, and rubbing them with soap; fruit stains must be taken out previously by soaking the spots for twelve hours in sour milk and well rinsing them afterwards in water, soap rubbed on fruit stains will fix the stains in the damask; linen sheets, and any other linen not very much soiled may be soaked in this tub, the "body linen" can be placed in another, and must be well soaped and rubbed in all the creases. The kitchen towels and dusters must be kept by themselves, as they are generally very dirty; soap and rub them also. Do not soak woollen or colored articles. Then fill the boiler with rain water and "lay" the fire ready for lighting. The following morning let the servant rise as early as possible, at five or six o'clock in summer if she can manage to do so, and light the fire at once so that the water may be warm and ready to use as soon as she has had breakfast. She can open out the house and set breakfast in the dining-room and light the fire there at the usual time.

(1) Take the white flannels and wash them in warm rain water, about 100 deg. Fahrenheit, in a good lather of soap. (Some housekeepers have a large jar in which they dissolve all small pieces of soap by stewing in a cool oven; when cold this becomes jelly, and a little of it put in the warm water in which the flannels are to be washed answers very well for making the lather.)

(2) Take colored flannels and wash them in the same water.

(3) Wash the white flannels in fresh warm water without much soap, wring them, and hang out to dry at once.

(4) Wash the colored flannels in the second water in which the white flannels have been finished and hang them out to dry at once.

(5) All woollen articles must be washed in this way. Being allowed to lay about, or being

washed in hot water causes flannel and woollen articles to shrink.

(6) Next wash print dresses and colored pinafores; the same water in which the flannels were finished will do if the water is not too dirty. Secondly, they must be washed in clean, hot water and well rubbed and soaped and then rinsed in clean, cold, hard water and wrung as dry as possible; this is done best by a machine, care being taken not to crush the buttons. Some prints will bear boiling with soap and soda, but most would be quite spoiled by this process.

(7) Hang out all the colored things to dry.

(8) Now wring out of the water in which they have remained all night, the muslins and finest articles.

[To be continued.]

FACTS FOR THE KITCHEN.

WEIGHTS OF GROCERIES.

Ten common-sized eggs weigh one pound.

Soft butter the size of an egg weighs one ounce.

One pint of coffee A sugar weighs twelve ounces.

One quart of sifted flour (well heaped) one pound.

One pint of best brown sugar weighs thirteen ounces.

Two teacups (well heaped) of coffee A sugar weigh one pound.

Two teacups (level) of granulated sugar weigh one pound.

Two teacups of soft butter (well packed) weigh one pound.

One and one-third pints of powdered sugar weigh one pound.

Two tablespoons of powdered sugar or flour weigh one ounce.

One tablespoon (well rounded) of soft butter weighs one ounce.

One pint (heaped) of granulated sugar weighs fourteen ounces.

Four teaspoons are equal to one tablespoon.

Two and one-half teacups (level) of the best brown sugar weigh one pound.

Two and three-fourths teacups (level) of powdered sugar weigh one pound.

One tablespoonful (well heaped) of granulated, coffee A, or best brown sugar, equals one ounce.

Miss Parloa says one generous pint of liquid, or one pint of finely-chopped meat packed solidly, weighs one pound, which would be very convenient to remember.

Teaspoons vary in size, and the new ones hold about twice as much as an old-fashioned spoon of thirty years ago. A medium-sized teaspoon contains about a dram.

Bread From Blood.—Dr. Makarof has been making experiments in Russia with the blood of animals in the manufacture of bread. He made a dough composed of two-and-a-half parts of rye meal and one-and-a-quarter of blood. This he baked, and so produced a very good loaf of bread, which was not only fit to eat, but also contained much more nourishment than ordinary rye or wheaten loaves. Dr. Makarof considers that some regulations should be issued to people who slaughter animals, requesting them to collect blood, which has hitherto been wasted, and send it to certain specified centers, where it could be made into bread and distributed to the peasantry in the grain, so that they are obliged to grind it down, and as in most of the districts there has been a great dearth of fuel, the baking of the bread has been a great difficulty, which in some cases has proven insurmountable.

Halfpenny Queen's Cake.—Three pounds flour. 1½ lbs. sugar, 1 lb. margarine, 1 oz. volatile salts, 4 eggs, 1 pt. milk, lemon flavoring.

Beat the margarine and sugar to a cream, adding the eggs one at a time while doing so. Drop in the lemon, powder and dissolve the salts in the milk, turn this into the cream and stir well. Sift the flour and work it lightly in. Fill into well-buttered pans, put a few currants on the top of each, and bake on tins in a warm oven.

Cherry Lunch Cake.—One and one-half pounds flour, 1¼ lbs. sugar, 8 oz. dried cherries, 8 oz. sultanas, 10 eggs, almond flavoring.

Beat the eggs to a light froth, add the sugar, and make up a stiff batter. Work in the flour and flavoring, then add the sultanas and cherries (cut into small pieces). Fill the batch into small oval paper-lined pans, sprinkle granulated cocoanut on the tops, and bake on tins in a warm oven.

Currant Custard Tarts.—One pound sugar, 1 lb. butter, 8 oz. powdered ratafias, 8 oz. ground almonds, 8 oz. currants, 10 egg-whites, grated rinds and juice of two lemons.

Beat the sugar and butter to a glossy cream, adding the egg-whites gradually while beating. Work in the juice and rinds (previously grated), then add the currants, almonds and ratafia powder. Line some tart pans with three-quarter paste, and three parts fill them with the above filling. Place the goods on baking tins and bake in a warm oven.

Devonshire Turnovers.—Two pounds flour, 1½ lbs. butter, 1 lb. sugar, 8 oz. ground almonds, 1 pt. new milk, apple jam.

Mix together the flour, almonds and sugar, and work in the butter. Form a bay, turn in the milk, and make a soft dough. Knead this thoroughly, roll out to a square sheet about the eighth of an inch thick, and cut into two and a half inch squares. Spread a layer of apple jam on one-half of each square, turn the other part over it, pinch the edges together, prick a hole on top of each. dredge with sugar, and bake on buttered tins.

Grantham Biscuits.—Three pounds flour, 2 lbs. sugar, 1 lb. butter, 8 oz. drained peel (cut very small), 2 oz. ground ginger, ½ oz. volatile salts, 6 eggs, 5 tablespoonfuls of milk.

Rub the butter into the flour, mix in the peel, sugar and ginger, and make a bay. Turn in the eggs, powder and dissolve the salts in the milk, add this to the eggs, stir well, and make a stiff paste. Roll the batch into long round strips about an inch thick, cut these into pieces, place them on buttered tins, leaving room for spreading, and bake in a warm oven

Lemon Nuts-—Five pounds flour, 2½ lbs. sugar 1½ lbs. margarine, ½ oz. volatile salts, 6 eggs, ¼ pt. milk, peel two lemons, lemon flavoring. This produces ten pounds of nuts.

Rub the butter into the flour, mix in the sugar, and make a bay. Powder and dissolve the salts in the milk, turn it into the bay, add the peel (finely grated), eggs and flavoring, stir all together, and make up a stiff paste. Mould this well, cut off portions, roll them into round strips about three-quarters of an inch thick, and cut them transversely into pieces about the size of an ordinary chestnut. Stick these in rows, a little apart, on buttered tins, wash over with milk, and bake delicately in a warm oven.

Portugal Cakes.—Five pounds flour, 3 lbs. brown sugar, 1½ lbs. currants, 1½ lbs. margarine, 12 oz. drained orange peel, 1½ oz. volatile salts, 6 eggs, 1 pt. milk, lemon flavoring. Thirteen pounds of cakes, at twelve to the pound, give 156 cakes.

Rub the margarine into the flour, mix in the sugar, currants and peel (cut very small), add the flavoring, powder and dissolve the salts in the milk, stir in the eggs, turn them into the other ingredients, and make a soft dough. Weigh off pieces an ounce and a half each, shape them into long ovals, and bake on buttered tins.

Churton Cakes.—Six pounds flour, 3 lbs. raisins (stoned and cut), 2 lbs. sugar, 2 lbs. margarine, 2 lbs. currants, 1 lb. blanched almonds (chopped), 2½ oz. baking powder, 1 oz. mixed spice, 6 eggs, 1 qt. milk.

Sift the baking powder and spice with the flour, rub in the margarine, and make a bay. Whisk the eggs to a froth, stir in the milk, turn all into the bay, add the sugar and make a soft dough. Work in the fruit and almonds. Fill into well-buttered oblong pans, and bake on tins in a warm oven. While hot wash the tops with a mixture of egg and milk.

MISCELLANEOUS.

THE NUMBER OF STARS.

When one looks at the "star-spangled" canopy of blue on a fine evening he unconsciously thinks that the number of bright specks which shine to such a fine advantage against their azure background are beyond computation. Such, however, is not the case. Bring the eye to bear upon a certain section of the sky, with some first magnitude star for a starting point, and see what an easy task it is to count all those within a large circle. You will not count more than half a thousand before you find out that you have covered a goodly part of the visible firmament; in fact, there are seldom more than 6,000 stars visible to the naked eye from any one point of observation.

A rare atmosphere may add a thousand to this number, but a slight haziness is more likely to reduce the visible number by one-fifth or one-fourth. There are probably another 2,000 which are never visible (those lying around the poles), which gives us 8,000 in all that would possibly be visible to the naked eye. With an opera-glass or a cheap telescope the number may be increased to 300,000, while with a large-sized instrument like that of Lord Rosse or the one at the Lick Observatory 70,000,000 of these worlds of greater or lesser magnitude may be counted.

The variance in the number to be seen with the naked eye, the opera-glass and the more perfect astronomical instrument arises from the fact that some are larger, some are further away, while others yet are more brilliant than their fellows. There are only 20 of the entire lot known as stars of the first magnitude; 35 are "second magnitude stars," 140 are third, 327 are fourth, 960 of the fifth, 4,400 of the sixth, and about 14,000 of the seventh magnitude. At present our sun with his train of planets is rushing through space, the stars before the train making way, while those behind close up after it has passed.—*St. Louis Republic.*

NOT EXPERT.—"I had to be away from school, yesterday," said Tommy.

"You must bring me an excuse," said the teacher.

"Who from?"

"Your father."

"He ain't no good at making excuses; ma catches him every time."—*Tid.*

◆

A SAD CAUSE.—Mrs. O'Brien—Good mornin', Mrs. McCabe. An phwat makes yez look so sad?

Mrs. McCabe—Shure, Dennis was sint to th' penitentiary fer six months

Mrs. O'Brien—Well! Shure, don't worry. Six months will soon pass.

Mrs. McCabe—Shure, that's phwat worries me.—*Judge.*

◆

HIS PORTRAIT.—Henry Irving likes to tell how, when he was in a Dorsetshire village last summer, he passed a group of children. One of them eyed him so sharply that the actor said, "Well, little girl, do you know me?" "Yes, sir," was the reply, "you are one of Beecham's pills." She had seen his face in an advertisement.

◆

NO ALL-NIGHT AFFAIR.—Moriarity—Honora, hasn't thot young man uv youres gone yit?

Miss Moriarity—Not yit, popper.

Moriarity—Well, you'd betther be askin' him if he thinks it's a courtin' or a wake that he's sitting up to.

◆

If a man has nothing to say, he is sure to take much time and use many words in saying it.

Jealous people always love themselves more than they do those whom they are jealous of.

IMPORTANT JUST NOW.

It is difficult, if not actually impossible, at this season of the year to escape altogether occasional disturbances of the digestive and excretory functions, particularly among those away from home "summering" at places of popular resort. Necessitated changes of habit and, too frequently, insalubrious dietary conditions, are too apt to have distressing and often serious consequences. Too little account, indeed, is made by most persons of the importance of the first of those two classes of influences in affecting the health. At the time of the World's Exposition at Philadelphia, thousands of persons were made dangerously ill, simply by the unaccustomed fatigues, altered hours of eating and sleeping, and novel mental excitements, to which they incautiously subjected themselves. And among those seeking recreation and recuperation away from the cities at this time annually, illustrative instances of that sort of thing are constantly abundant. Then, too, both food and water at popular resorts are very often elements of positive danger. Sanitary laws affecting the water supply are, as a rule, simply ignored in the summer boarding establishments, particularly on farms, and proper sewerage is practically unknown in a majority of country hotels. Of course, the disease germs planted in the system by contaminated water are most apt to give rise to maladies more grave than mere disturbances of the stomach and bowels, but deadly diseases often first demonstrate themselves in such disturbances and their most serious stages are at least apt to be averted if those are properly and promptly regulated. To unwholesome food, both animal and vegetable, is, however, attributable the vastly greater majority of summer complaints, including under that head diarrhœa, dysentery and flux. The art of the cook conceals, under high flavors and rich sauces, the warning taint of meat, fish and game—hides beneath skillful preparation the unripeness or fermentation of fruits and berries—and tempts appetite when wisdom would prescribe abstention. And the cook who cannot do all that is of little value to a fashionable summer hotel, particularly one located at a considerable distance from its base of supplies in some big city. It is really surprising how much of such stuff some persons will gorge with impunity, but they are in the minority and their powers of digestion—great as they may be—are sure to find their limit some day. Even an ostrich could not live permanently on that sort of feeding. And most persons are liable to feel its effects very quickly. If unwonted exposure to the sun, or unusual fatigue, or sudden serious changes of temperature, are brought to the aid of the cook, the result is attained all the more speedily. The violent irritation caused by fermented vegetable or decomposing animal matter brings on at once Nature's strenuous endeavors, by diarrhœa—which may very speedily become dysentery—to rid the system of the malefic substances. But where the malady has not been thus induced by what are practically active poisons, and is simply the natural result of a persistent and careful cultivation through continued absorption of less virulent but still injurious food, the diarrhœa is always preceded by a period of constipation. That is the danger signal which should receive prompt attention, for, as soon as the bowels become constipated, the liver ceases to properly discharge its duties; the kidneys, endeavoring to assume its responsibilities, are quickly overtaxed and become diseased; the assimilative functions are perverted and indeed the whole vital economy is clogged and its courses turned away. At the first indication of a tendency to such conditions, a cathartic, or purgative, medicine should be taken; not a violent "physicking-pill" to forcibly empty the bowels and subsequently, by reaction, compel increased constipation, but one that will act gently; efficiently in stimulating excretion and at the same time stir to action and invigorate, the liver and kidneys. And the medicine capable of doing this is also the best and most radical cure for Nature's excessive efforts at self-relief. The only preparation which seems to fully meet these requirements, is the old stand-by "Ayer's Cathartic Pills," the efficiency of which has been demonstrated by nearly half a century's use all over the world. No one going to the country in summer should be without them

BUFFALO LITHIA SPRINGS.—HOT SPRINGS.

TWIN REMEDIES IN

GOUT, RHEUMATIC GOUT AND RHEUMATISM.

WHAT THE HOT SPRINGS PHYSICIANS SAY:

Dr. Algernon S. Garnet, Surgeon (retired), U. S. Navy, Resident Physician, Hot Springs, Ark.:

"My experience in the use of BUFFALO LITHIA WATER is limited to the treatment of **Gout, Rheumatism** and that hybrid disease, **'Rheumatic Gout'** (so called), which is in contradistinction to the **Rheumatoid Arthritis of Garrod.**

"I have had *excellent results* from this Water in these affections, *both in my own person and in the treatment of patients for whom I have prescribed it.* Of course, the remedial agent is its contained **Alkalies** and their solvent properties.

"Hence it is a **prophylactic,** *as well as a* **remedy in Nephritic Colic,** *and forming* **Calculi** *when due to a redundancy of* **Lithic Acid.**"

The Late Dr. Wm. F. Carrington, Resident Physician, Hot Springs, Ark., Surgeon (retired), U.S. Navy, Surgeon Confederate States Navy:

"BUFFALO LITHIA WATER, Spring No. 2, has signally demonstrated its remedial power in **Gout, Rheumatic Gout, Rheumatism, Uric Acid, Gravel** and other maladies dependent upon the **Uric Acid Diathesis.**

"*It not only eliminates from the blood the deleterious agent before it crystallizes, but* **dissolves** *it in the form of* **Calculi,** *at least to a size that renders its passage along the ureters and urethra comparatively easy.*"

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"*Send me five cases* BUFFALO LITHIA WATER, Spring No. 2. I have made use of this Water for **Gout** *in my own person and prescribed it for patients similarly suffering, with the most decided beneficial results. I take pleasure in advising* **gouty** *patients to these Springs.*"

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"I prescribe BUFFALO LITHIA WATER with great confidence, in all diseases of **Uric Acid Diathesis.** When traveling, it is my habit to use this Water as a guarantee for getting a pure water."

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BOOK NOTICES.

Worthington Co., 747 Broadway, New York, announce for immediate publication as No. 28 in their International Library, "The Heiress." By Henry Greville. Translated by Emma C. Hewitt and Julien Colmar. Illustrated with photogravures. 1 vol., 12 mo., paper, 75 cents, ½ Rox., $1.25.

Unquestionably one of the liveliest of recent French novels from the pen of Henri Greville, one of the foremost writers of the century. The book possesses the remarkable qualities of purity, originality, imagination and knowledge of mankind, and while it is a delightful bit of fiction, it charms also by its style, for it is written with that surprising facility and freshness of expression which has made Greville's name a household word among cultivated readers. The character of the heroine, Marcelline Lematroy, the daughter of a naval officer, is particularly attractive.

Also announce for immediate publication as No. 2 in their Fair Library, "The Hand of Destiny." By Ossip Schubin. Translated by Mary A. Robinson. 1 vol., 12 mo., paper.

A really captivating novel, light and dainty in touch, told with the same quaint humor, tenderness and skill that has made her "Asbein" and other stories so universally popular. It is a keen and truthful analysis of modern Roman society, and abounds in brilliant scenes in which breadth and vigor of treatment are harmoniously blended with exquisite delicacy of detail.

◆

Doing Well.—Mrs. Kingley—I hear that your husband goes to prayer-meeting every Friday night now. How is he getting on?

Mrs. Bingo—I heard him say last night in his sleep that he was ahead of the game.—*Judge*.

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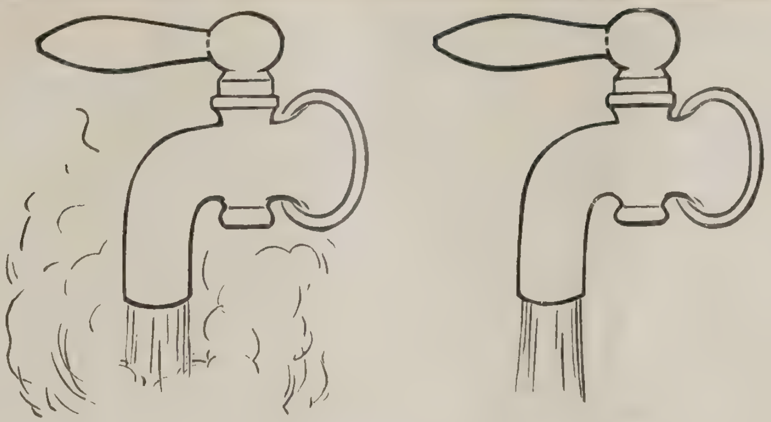

In either of these, with a little *Pearline*, you can wash clothes more easily, more quickly, and more cheaply, than in any other way. *You* can, we say—but perhaps you don't have to. Then (?) the ease of it doesn't affect you so much. But the quickness, the thoroughness and the economy of it does. The less time that's spent on your clothes, the less it costs you—**it's** money in your pocket every time they're saved from the wearing rub, rub, rub of the old way. But the *water* doesn't make any difference. Use what's handiest. Hot or cold, hard or soft, salt or fresh, rain or shine, it's all the same if you have *Pearline*. When you *don't* have it there *is* a difference. 304 JAMES PYLE, New York.

BUSINESS NOTES.

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◆

CATARRH.

There is more catarrh in this section of the country than all other diseases put together, and until the last few years was supposed to be incurable. For a great many years doctors pronounced it a local disease, and prescribed local remedies, and by constantly failing to cure with local treatment, pronounced it incurable. Science has proven catarrh to be a constitutional disease, and therefore requires constitutional treatment. Hall's Catarrh Cure, manufactured by F. J. Cheney & Co., Toledo, Ohio, is the only constitutional cure on the market. It is taken internally in doses from ten drops to a teaspoonful. It acts directly on the blood and mucous surfaces of the system. They offer one hundred dollars for any case it fails to cure. Send for circulars and testimonials. Address,

F. J. CHENEY & CO., Toledo, O.

☞Sold by Druggists, 75c.

◆

The Russet Orange.—The russet orange is made so by a minute insect, which comes at certain times during the summer months in such vast numbers as to give a grove the appearance of being covered with brown dust. A magnifying glass shows this insect to possess a bill-like proboscis, with which it punctures the oil-cells of the orange-skin, and causes the oil to exude, which becomes oxydized on the surface and discolors it. It acts much upon the rind of the orange as tanning upon leather, making it thinner and tougher. It is a mistake to say they select only the "sweet fruit," for they cover an entire grove, both fruit and foliage. Some hold to the theory that as they destroy the oil-cells of the rind, the formation of oil ceases, and the fruit is made richer and sweeter in consequence. Sometimes orange-growers spray their trees with a mixture that destroys the insects, but it was found that the russet orange shipped so much better, and was so much finer in quality, that they have abandoned it. The Hammock and Indian River fruit is seldom attacked by the rust-mite, hence it is not so durable for shipping, the skin being very tender.

There is nothing so delicious to the soul of man as an occasional moment of sadness.

◆

Ripans Tabules : for sour stomach.

◆

THE LINE OF LAKES.

The above name has been applied to the Wisconsin Central Lines, on account of the large number of lakes and summer resorts tributary to its lines. Among some of the well-known summer resorts are Fox Lake, Ill., Lake Villa, Ill., Waukesha, Mukwonago, Cedar Lake, Neenah, Waupaca, Fifield, Butternut and Ashland, Wis. These lakes abound in numerous species of fish, such as black bass, rock bass, pickerel, pike, perch, muskallonge, while sportsmen will find an abundance of game, such as duck, geese, quail, snipe, etc. In the grandeur of her scenery, the charming beauty of her rustic landscapes and the rare perfection of her summer climate, the State of Wisconsin is acknowledged to be without a peer in the Union. Her fame as a refreshing retreat for the overheated, careworn inhabitants of the great cities during the midsummer months, has extended as far southward as the Gulf of Mexico and eastward to the Atlantic.

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Hydrarg, Iodid	1-20 gr.	Medical properties.—Alterative.
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Nucis Vomicae	1-50 gr.	Medical properties.—Tonic, Stimulant.
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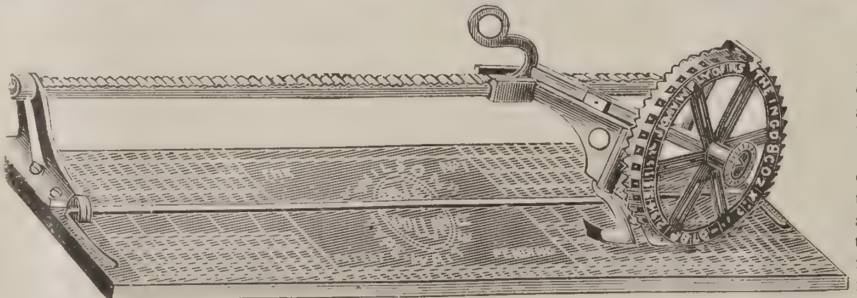

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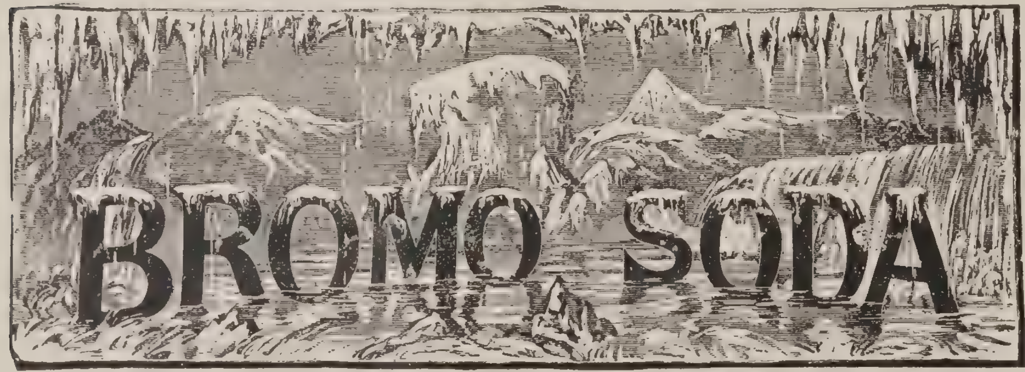

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CONTENTS.

	Page
Adulterated Cocoa	265
Adulterated Honey	265
Adulteration	264
Cocoas	264
Coldness of Lake Superior	IV
Editorial	261
The Science of Nutrition. U. S. Corn in Germany.	
Family Washing (concluded)	265
Five Minutes' Exercise	263
Getting Lean and Getting Fat	264
Headaches	262
Household	265
Hygienic	263
Hygienic Clothing (concluded)	263
Lost Key to a Cipher	266
Medical	261
Miscellaneous	266
Note on Palen's Process (Vinegar)	265
Overcome by Illuminating Gas	261
Vinegar Adulteration	265

THE SCIENCE OF NUTRITION.

It is undoubtedly true that the science of nutrition is the most important of all temporal matters inasmuch as the physical welfare of man depends primarily on the way he is nourished. It is undoubtedly erroneous to say, as a few recent writers on the subject have glibly declared, that this science is only fifty years old—that it owes its being to the researches of Liebig and Playfair. It would be as reasonable to assert that Edison had brought electrical science into existence. The science was known generations before these distinguished men were born, and great as the benefits are, which they have conferred upon mankind, they are to be regarded as discoverers of details rather than of original principles. Neither is this derogatory to their great reputation. He who makes two blades of grass grow where only one grew before does as much for mankind as he did who first discovered the grass. The truth is that modern scholars—all honor to them—are following out the line which Adam began the first time he felt hungry. It is truly a science, and great strides have been made in knowledge within the memory of some now living, but it is not truly a modern science. Neither is it nor can it ever be an exact science, as some writers foolishly claim, seeming to think they are thereby exalting it. So long as human beings continue to have physical idiosyncracies, it will remain true that "what's one man's meat is another man's poison," and so long as that is true nutrition must remain outside the category of exact sciences. This, again, is by no means a reflection on the dignity and importance of the science, which, as was said, must always remain paramount so long as man continues to inhabit a physical body. No doubt enormous gain ensues whenever a scientist teaches mankind where to find food elements or how to prepare foods in such manner as to preserve the value of those elements, or render them more easily digestible. Such work can hardly be praised too highly, and it is entirely superfluous to attribute to it a character which does not belong to it. Into this error, however, nearly all "schools" of students in this science are apt to fall. Carbo-hydrates and fat and protein are certainly necessities of physical well-being, and they are as certainly to be found in various articles of food which are less esteemed by mankind generally than various other articles of food. The mistake lies in supposing that because these chemical constituents exist in any one article in greater perfection and better proportion than in another, the first is therefore the preferable food for everybody. Too many other considerations aside from chemical constitution are to be taken into consideration to allow any such conclusion. It is this error that vegetarians, for example, fall into when they assume that beans are better than beef, dried codfish more valuable than good veal, and cheese one of the best, if not the very best, foods known to man. They are such to many individuals, but there are persons to whom these foods are positively injurious, and there are many more to whom they are far less valuable than other foods which chemically are greatly inferior to them. The question of food values is not one of chemistry alone, but of chemistry plus the physiological peculiarities of the individual. To this truth, almost self-evident as it is, the theorists appear to be blind, or if they acknowledge it they only allow that it is true in exceptional cases, whereas it is of almost universal application. Only by considering this question of idiosyncracy together with the chemical part of the problem can any just results be attained. Nevertheless, the theorists, blind as they usually seem to be to those facts which go toward disproving their theories, are doing great good by insisting upon those facts which they accept. The common sense of mankind, and still more, the natural appetites which are the natural guides, may be relied on to keep most people from going far astray in the matter of eating, and a general knowledge of any fact or set of facts is a distinct benefit to the race. All this is relative only to one branch of the science as it is classified, namely, that of the selection of foods. The other division —unnecessarily sub-divided by most writers—is that of the preparation of foods. In this branch the work of the scientists is deserving only of praise. Not only does it advance the welfare of humanity by promoting economy of labor and expense, but it confers distinct benefits by showing how the really valuable elements of food are best treated, and how the best effects are to be obtained. This is of prime importance in the prevention of disease and the conservation of vital force No higher aim is within the scope of material science.

UNITED STATES CORN IN GERMANY.

Following is an extract from a letter written in Berlin, Germany, on the 24th of May, to a New York journal: "Thinking the progress of the Indian corn propaganda in Europe would interest your readers, I would say that, since beginning the crusade in Germany, thirteen mills have been put in operation for grinding corn, and some of them have been working night and day and have been unable to fill their orders. Several other mills in various parts of Germany will soon be erected, the demand for corn is so great. In Dresden, where two corn-mills are in operation, more than half the bakers are selling maize-rye bread, composed of one part of maize and two parts of rye, in which the taste of the maize is not perceived. Even the two mills in the latter city, one of them T. Bienert's, the largest rye mill in Germany, are baking and selling large quantities of this bread, and the old government garrison bakery is turning out thousands of loaves daily. The red show-bills I mail you will show the saving effected by the people in using this bread, and these can be seen in many of the bakers' windows in Berlin. Yon will notice the great increase in importation of our corn from the letter of the U. S. Consul at Rotterdam; the other letters and circulars will speak for themselves. Considerable opposition has come from the German Millers' Association, and many false charges have been made against it as human food, all of which have been successfully refuted. My firm opinion is that, when the German people know the full value of Indian corn as human food, they will consume as much as Americans do in proportion to the number of inhabitants. The government is now putting in a corn-milling plant in their large mill at Magdeburg, and the government report on the value of corn as food will soon be published, which is the result of a thorough investigation and practical testing of bread-making at the garrison bakery in this city, and which, I am informed by the commission, will be highly favorable."

MEDICAL.

OVERCOME BY ILLUMINATING GAS.

THE REMEDY.

Several suggestions were made by different speakers at the recent meeting of the American Gas Light Association, at Toronto. The most practical were those quoted on the authority of a prominent physician (*Scientific American.*):

1. Take the man at once into the fresh air. *Don't* crowd around him.

2. Keep him on his back. *Don't* raise his head, nor turn him on his side.

3. Loosen his clothing at his neck and waist.

4. Give a little brandy and water—not more than four tablespoonfuls of brandy in all. Give the ammonia mixture (one part aromatic mixture to 16 parts of water) in small quantities, at short intervals—a teaspoonful every two or three minutes.

5. Slap the face and chest with the wet end of a towel.

6. Apply warmth and friction if the body or limbs are cold.

7. If the breathing is feeble or irregular, artificial respiration should be used, and kept up until there is no doubt that it can no longer be of use.

8. Administer oxygen.

HEADACHES.

There is hardly a complaint so common as that of headache. Headaches arising from indigestion or constipation should of course be treated by removing the cause. In that large and very prevalent class of headaches known as nervous headache one of the following remedies may bring relief:

No. 1.

R Acetanilid drams 7; caffeine dram 1; sodium bicarbonate drams 2.

No. 2

R Phenacetin grains 10; caffeine grain 1. One dose.

No. 3.

R Acetanilid grains 3; caffeine grain 1; sodium bromide grains 7. One dose.

No. 4.

R Acetanilid part 1; phenacetin parts 2; antipyrin parts 4. Dose 8-16 grains.

This combination has been found serviceable in specially obstinate cases of neuralgic headache.

HEADACHE CAPSULES.

R Antipyrin grains 540; caffeine grains 90; extract canabis indica grains 16; hyoscine hydrobromide grain 1. Make into 30 capsules and give one every one to three to five hours.

HEADACHE MIXTURE.

R Caffeine grains 20; ammonium carbonate grains 20; elixir guarana ounce 1. One dram every hour until relieved. For neuralgic headaches.

Tan and Freckles.—Dr. Chevasses' preparation for tan, pimples, freckles, etc.:

R.	Rose water	ounces vj
	Glycerine	ounces ss
	Bitter almond water	
	Tinct. benzoin	aa....drams ijss
	Borax	drams jss

M. Rub the borax with the glycerine, gradually adding the rose and almond water; lastly add the tincture benzoin, agitating constantly. Apply night and morning.—*Columbus Medical Journal.*

Chloasma.—R. Ammoni chloridi, 4 parts (dram j); acidi hydrochlorici, 5 parts (dram j¼); glycerini, 30 parts (drams vijss); tincturæ benzoinl, 10 parts (dram ijss); aquæ rosæ, 100 parts (ounces iij dram). Misce Signa.—Apply to the pigmented spots with a brush night and morning. —*Union Medicale.*

[Another writer in the *Pharm. Zeit.* recommends for this discoloration and for freckles, equal parts of lactic acid and glycerine applied to the skin.—Ed.]

Milk a Microbe Killer—Dr. Freudenrich has found, by experiments, that the cholera bacillus, if put into milk drawn fresh from the cow, dies in an hour, and in five hours if put into fresh goat's milk. The bacillus of typhoid fever takes twenty-four hours to die in cow's milk, and five hours in goat's milk. Other microbes suffer a like fate in varying periods. But he has also found that milk maintained for an hour at a temperature of 231 degrees Fahrenheit, loses its power to kill microbes—a statement which is of interest in the face of the common teaching which makes the purification of milk depend upon its being boiled. Again, the bactericidal properties of milk become weaker the older it gets, for a cow's milk after four days, and goat's milk after five days, ceases to have any effect upon micro-organism.

Going to Sleep.—Scientific investigators assert that in beginning to sleep the senses do not unitedly fall into slumber, but drop off one after another. The sight ceases in consequence of the protection of the eyelids to receive impressions first, while all the other senses preserve their sensibility entire. The sense of taste is the next which loses its susceptibility to impression, and then the sense of smelling. The hearing is next in order, and last of all comes the sense of touch. Furthermore, the senses are brought to sleep with different degrees of profoundness. The sense of touch sleeps the most lightly and is the most easily awakened; the next easiest is the hearing, the next is the sight, and the taste and smelling awake last. Another remarkable circumstance deserves notice: certain muscles and parts of the body begin to sleep before others. Sleep commences at the extremities, beginning with the feet and legs, and creeping toward the center of nervous action. The necessity of keeping the feet warm and perfectly still as a preliminary of sleep is well known. From these explanations it will not appear surprising that there should be an imperfect kind of mental action which produces the phenomena of dreaming.

Ancient Hindu Vaccination.—At a meeting of the Epidemiological Society (*Lancet*, February 29, 1892), Dr. Pringle quoted a remarkable passage from an ancient Hindu work, which showed that true vaccination was known and practiced in India centuries before the birth of Jenner: "The small-pox produced from the udder of the cow will be of the same mild nature as the original disease. . . . the pock should be of a good color, filled with a clear liquid, and surrounded by a circle of red. . . . There will be only slight fever of one, two or three days, but no fear need be entertained of small-pox so long as life endures." Pasteur's attenuation of virus by successive cultures has been applied in India for hundreds of years to inoculations with variolous lymph, which the document in question directed to be taken from "the most favorable cases," and he has seen series of such selected inoculations in which there was no general eruption, and the local phenomena were scarcely distinguishable from those of vaccination.—*Med. and Surg. Reporter.*

To Deodorize Naphthalin.—The addition of a small amount of sublimed benzoin is said to neutralize the disgusting odor of naphthalin. The odor can also be masked by benzoic acid, or even tincture of benzoin.

The Worst.—Patient—Doctor let me know the worst.

Doctor (absent-mindedly)—Your bill will be two hundred dollars.

Persistent Hiccoughing is always considered a dangerous symptom, and it certainly is a very disagreeable one. It is cheerful to learn that the worst cases can be stopped and even cured by uninterruptedly compressing the phrenic nerve for three minutes by means of the finger. But we fear that the average reader will require a copy of Gray's Anatomy when he learns that this nerve must be compressed between the two sterno-clavicular attachments of the sterno-cleido-mastoid muscle.

Chilblains are not particularly in season at this time of the year, but remedies for their treatment are always in demand. Brinton recognized the following:

Phenol	20 drops
Oil of turpentine	1 fluidounce
Lanolin	1 ounce

Make an ointment and apply locally.

The Cold Bed.—If trustworthy statistics could be had of the number of persons who die every year, or become permanently diseased from sleeping in damp or cold beds, they would probably be astonishing and appalling. It is a peril that besets traveling men, and if they are wise they will invariably insist on having their beds aired and dried, even at the risk of causing much trouble to their landlords. But, according to *Good Housekeeping*, it is a peril that resides also in the home, and the cold "spare room" has slain its thousands of hapless guests, and will go on with slaughter till people learn wisdom. Not only the guest, but the family often suffer the penalty of sleeping in cold rooms and chilling their bodies at a time when they need all their bodily heat, by getting between cold sheets. Even in summer a cold, damp bed will get in its deadly work. It is needless peril, and the neglect to provide dry rooms and beds has in it the elements of murder and suicide.

The Care of the Mouth.—In a recently published work Dr. Thomas, a German physician, calls attention to the great prophylactic value of buccal cleanliness (*Med. Rec.*) The best dentifrice, he says, is soap, which dissolves the mucus and removes it from between the teeth more thoroughly than any other substance. After a careful brushing with soap or with the tincture of soap bark (quillaya saponaria), some antiseptic should be used. The most efficient antiseptics for this purpose, either of which is capable of destroying the micro-organism in one minute, are thymol, 1 to 25,000, and corrosive sublimate, 1 to 5,000. The following is recommended as a useful and pleasant buccal disinfectant:

R.	Thymol	grains iij
	Benzonic acid	grains xl
	Tincture of eucalyptus	drams iij
	Essence of peppermint	minim x
	Alcohol	ounces iij

M. Sig.—Pour enough of it in a glass of water to render it turbid and use as a mouth wash.—*St. Louis Medical and Surgical Journal.*

Thought it was Contagious.—Mr. Noopop—Doctor, is insomnia contagious?

"Certainly not, sir. What made you ask?"

"Because I notice that when baby is troubled with insomnia, my wife and I invariably catch it, too."—*Tid-Bits.*

Corn Salve.—Dried carbonate of soda one-half ounce, lard one ounce; mix. Apply on a piece of rag. Renew night and morning.

Remedy for Ivy Poisoning.—A strong decoction of chestnut leaves applied every three or four hours as a bath to the affected parts is vouched for by Dr. S. B. Stanley as a sure remedy.

For Dandruff.—The scalp should first be thoroughly washed with soap and hot water and then thoroughly dried with a warm soft cloth; there should then be rubbed into the scalp a glycerole of tannin, of the strength of ten to thirty grains to the ounce. Very obstinate cases will require the higher strength of tannin. This process should be repeated twice a week at first, once a week afterward. If tannin fails, as it will in some cases, then resort is had to resorcin. After the formation of dandruff has ceased the head should be rubbed daily with olive oil containing, to the ounce, ten grains of carbolic acid and a drachm of oil of cinnamon.—*Lancet.*

HYGIENIC.

HYGIENIC CLOTHING.

BY FRANK H. DANIELS, A. M., M. D., VISITING PHYSICIAN TO THE MANHATTAN HOSPITAL.

[Read before the Harvard Medical Society of New York City, January 9, 1892.]

[Concluded.]

Parker's experiments have shown that the hygroscopic properties of wool, as compared with cotton or linen (and these two stand about the same in this respect), are twice as great when weight is compared with weight, and four times as great when surfaces are compared. Perfectly dry wool can absorb fifty per cent by weight of water, and retain from twelve to eighteen per cent.

The function of perspiration, as well as of heat regulation, takes place best when the fabric next the skin is a thoroughly porous one; and Pettenkofer's experiments have shown that, if heavy flannel be taken as allowing one hundred parts of air to pass through, linen will allow sixty and silk only fourteen parts to pass through.

The *Medical Record* for January 15, 1887, said: "There is no doubt that wool stands at the head of the materials out of which clothing is made. Its virtues depend upon its being a poor conductor of heat, its porosity allowing the passage of the exhalations from the skin, its power of absorbing moisture, and giving it up slowly and gradually."

Nearly a century ago Count Rumford said that woolen clothing greatly promoted insensible perspiration, owing to the strong attraction which subsisted between wool and watery vapor which was continually issuing from the human body. "It is evidently not due to the warmth of the covering; for the same degree of warmth produced by more clothing of a different kind does not produce the same effect. It is a mistaken notion that it is too warm a clothing for summer. I have worn it in the hottest climates, and in all seasons of the year, and never found the least inconvenience from it. It is the warm bath of a perspiration confined by a linen shirt, wet with sweat, which renders the summer heats of tropical climates so insupportable; but flannel promotes perspiration, and favors its evaporation; and evaporation, as is well known, produces positive cold."

It will be seen from what has already been said that wool answers each one of the requirements of a perfect clothing material in the highest degree; and it only remains for us to determine how wool shall be used so as to take the greatest advantage of its properties. Until recently the only woolen fabric we have been acquainted with practically has been flannel, where the wool is first spun and then woven more or less tightly into a fabric. By this means the value of all the properties which make wool pre-eminent as a clothing fabric is diminished; and laboratory experiments made with wool as it comes from the sheep do not agree with those made of flannel—*i. e.*, spun and woven wool. In order to preserve the absorptive property of the wool in the highest degree, the fibers must be arranged with their points against the skin, and not longitudinally, as in a woven fabric. This idea has already been recognized and taken advantage of by the originator of the Jaros hygienic underwear, and I pass around for your inspection a few garments made from this material. It is, as you will see, unspun wool caught into the mesh of a loosely knitted cotton back in such a manner as to preserve unimpaired all the properties which make wool valuable as a clothing fabric. Let me briefly recapitulate the qualities demanded of a clothing fabric, and then tell me if this fabric does not answer these requirements in the most admirable manner. It should be hygroscopic, porous, and so loosely woven as to include more or less air in its meshes. For, as has been pointed out above, less heat is lost by radiation if the body is surrounded by a layer of air heated to the body temperature or thereabout. Krieger has already called our attention to the fact that the outer framework of a fabric is but secondary in importance of action as a covering or clothing material when the material next the body has the important qualities just mentioned as being possessed by the Jaros hygienic underwear. I have here a sample of the latest product of the Jaros Company, which may be said to be the most perfect clothing fabric made. The framework or back of this is silk, rendering the fabric still lighter. The arrangement of the wool is such that, by capillary attraction, perspiration is absorbed, and carried to the silk or cotton back, whence it is evaporated into the surrounding atmosphere; and this attraction is so great that the back may be thoroughly saturated, while the wool next the skin is perfectly dry. When our clothing is damp from perspiration, or from any other cause, our bodies lose just as much heat as the moisture in the clothing is capable of absorbing. The importance of always having dry material next to our skin is evident; and the material which will retain the least moisture is the best. Woolen fibre is found to answer this purpose more nearly than any other. The Jaros material is highly porous, allowing free ventilation; at the same time a large amount of air can be caught and rendered to a certain extent immovable, thus preventing too rapid loss of heat by radiation. Van Ziemssen, in vol. xviii of his *Encyclopdia*, says, "A material of loose texture confining much air in its interstices is warmer than the same amount of clothing material closely woven. Wool or cotton carded and spread out in the shape of a wadding and held will make a warmer garment than the same quantity spun and woven and similarly covered. This applies with force to underclothing." This fabric does not shrink; for cotton, the material of which the framework is made, never does to any extent.

While citing perfection attained in clothing materials, we are confronted by the Jaeger material, or stockinet, a loosely-knitted flannel made of pure wool, and comparing most favorably with the pure-knitted woolen garments of the old-established and renowned manufacturers, Cartwright & Warner of England. Carefully selected wool is, no doubt, the great claim for this fabric, which is well as far as it goes. In the Jaros material, on the contrary, we find a practical accomplishment of scientific theories, the caprice of no one scientist having been followed out, and, in contradistinction to "systems," in which the professional world finds nothing new, we have a simple, practical, scientific material.

It is only recently that I have had my attention drawn to this Jaros wear, and have had an opportunity of testing it; and I must confess that nothing has given me such personal satisfaction and comfort. I have gone out into the cold from a small, over-heated tenement-house room after performing a difficult and tedious obstetrical operation, with my white shirt saturated with perspiration, and have felt no trace of chill. And have found on reaching home that, although my white shirt and the cotton back of my Jaros wear were wet, the wool next the skin was perfectly dry, as well as the skin itself. And this winter, for the first time in ten years, I have had no nasal catarrh, from which I usually suffer every autumn and winter, and I attribute my escape so far solely to my Jaros underwear. And, in this connection, let me say that Dr. O. B. Douglas, in a discussion before the Post-graduate Clinical Society, on the treatment of nose and throat diseases, expressed himself as pleased with this wear. Underwear of this description is of inestimable value to those whose occupation compels them to go from place to place where the temperature is continually changing; for, no matter how high or low the temperature of the surrounding air is, the skin is perfectly protected against any sudden change.

I do not wish to be understood as detracting in the least from Professor Jaeger's due deserts, for he is entitled to great credit for what he has done in insisting upon the value of wool as a material to be worn next the skin. But he is simply re-echoing what Count Rumford said a century ago, which I have already quoted to you this evening. He has founded no new system; he simply insists that pure fine wool is better than the mixtures we have been using.

FIVE MINUTES' EXERCISE.

HOW A MAN MAY FIND AN AMPLE GYMNASIUM IN HIS CANE.

There are a good many men who know they need some physical exercise daily, but who put off beginning it, from year to year, on account of the time they think it would take away from their business hours. Few men seem to be aware that five minutes spent in daily or even three times a week in exercises properly selected for bringing out all the principal muscles of the body are sufficient to set the blood coursing freely to the extremities, to stimulate the heart, to massage the bowels, to stir up the liver, to strengthen the limbs, to straighten the shoulders and increase the capacity of the lungs. This is a good deal to claim for five minutes' exercise, and seems to suggest the use of elaborate gymnastic apparatus. It is not too much, as has been proved, and all the apparatus required is an ordinary walking stick. Elaborate systems of exercise look more promising of results at the first glance, but as they consume time, busy men generally drop them after a few trials.

Mr. C. P. Lenhart, physical instructor of the Manhattan Athletic Club, who is a graduate of a medical college, but abandoned his practice of curing diseases and has devoted his energies for the last ten years to the prevention of them by means of physical culture and the proper observance of hygienic rules, and who has met with marked success in that line, and is in himself a striking example of well-developed manhood, recommends the following exercises to busy men on rising in the morning or just before going to bed at night, in order that all the organs of the body may perform their natural functions:

"For the upper part of the arms: Grasp the cane firmly at both ends with the hands and hold it across the chest, letting the middle of the cane rest on the breast just under the chin. Drop the hands forward and down to the full length of the arms rapidly and return to position on the chest, accenting the upward movements. Continue this for thirty seconds. Holding the cane as before, push the arms straight above the head, full length, taking long full breaths. Continue this for thirty seconds more.

"If the arms are poorly developed this may be repeated after the other exercises are completed. When the arm is doubled up so that the fist is near the shoulder, the biceps ought to measure about two inches more in circumference than the forearm.

"For the muscles of the sides: With the arms at full length above the head and the hands grasping the cane as in the end of the last exercise, swing from side to side as far as possible; time thirty seconds.

"Here pause and take two long deep breaths of five seconds each.

"To strengthen the muscles of the back and rid the abdominal muscles of fat: Holding the cane as in the last position at arm's length above the head, bend forward and bring the cane as near the floor as possible without bending the knees or elbows; then swing as far backward as possible without losing your balance. Do this briskly for thirty seconds.

"This will make a large waist smaller, if persisted in. It is good for lumbago also, and will help those who bend over a desk all day.

"To strengthen the forearm: Grasp the cane in the middle with one hand and extend it at arm's length, on a level with the shoulder. Then twist the cane back and forth, like the spokes of a wheel, for twenty seconds. Then change hands and repeat for twenty seconds more. This will also strengthen the grip.

"For the legs, ankles and knees: Grasp the cane again with both hands, as in the first exercice, and with arms fully extended from the shoulders, straight out in front, drop the body to a sitting position, by bending the knees and ankles. Raise the heels from the floor in going down, and after coming up again to full height on the heels, rise on the tips of the toes. Continue this slowly for forty-five seconds.

"The further you go down the more severe will this exercise be. Don't go down far till you are used to it. It gives the heart a good deal to do and should not be executed too rapidly.

"Here pause again, and take two long deep breaths, five seconds each.

"For strengthening the neck and straightening stooped shoulders: Drop the cane and clasp both hands back of the top of the head. Let the elbows point straight forward. Drop the head forward and down so that the chin touches the chest. Pull on the arms so as to put a tension on the neck muscles and then push the head back of an erect position. Throw the chest forward as the head and shoulders go back. Continue this for thirty seconds. If the head is thrown back with the chin held down, we can hardly help standing erect.

"Take two more long deep breaths, five seconds each.

"For kneading the lower part of the bowels, stirring up the kidneys and liver and preventing constipation, stand erect and kick at the chest with each knee alternately, bringing the knee up as high and as close to the body as possible. Continue this for twenty-five seconds. This gives practically a Swedish massage to the bowels.

"Pause now and take two long full breaths, five seconds each.

"This is the least amount of exercise a man should take, and it would be none too much for women and old people. For the young and robust these exercises might well be doubled," said Dr. Lenhart the other day, "and while it is far from being a complete system of muscular development, its brevity recommends it to busy people and it is complete enough to give admirable results, if followed regularly for some length of time.

"Some may ask 'How can I time myself accurately while going through these motions?' 'By counting,' is my answer. Get some one to time you when first you try it, and count each motion as you make it. Some motions you will perform once a second; others, once in five seconds. Thus you will see that when you have done the first motion, say thirty counts, it is time to take up the next one, and so on to the end of the series. That is a simple matter, and if you should get through the series in a little less than five minutes, or a little more, that is of no account."

GETTING LEAN AND GETTING FAT.

It is a singular fact that the same diet and hygienic attention which tends to make a person who is too fat lose flesh is also just the regimen which is apt to benefit the lean and dyspeptic and cause them to acquire more rounded proportions.

The ancient Gauls were a very brave and hardy race and lived abstemiously. Their food was milk, berries and herbs. They made bread from nuts. They had a peculiar fashion of wearing a metal ring around the body, the size of which was regulated by law. Any man who outgrew his ring was looked upon as a lazy glutton, and consequently was disgraced.

The lazy and over-fat glutton is not dyspeptic. His food goes to fat. The dyspeptic who eats too much loses the whole benefit of his food, and gets such disturbances engendered that he grows poorer.

William Muldoon, the famous trainer, has an interesting article in "Food" on the way he would train three typical cases. One of them—a pugilist—is very much overweight, has dissipated a great deal, and is anxious to get in fighting trim. The second man is at weight, but generally out of condition; and the third, a New York club man, is completely run down by the fast life that he has led.

To begin with he insists that tobacco be given up. This comes the hardest on the club man, who misses his cigarettes terribly. The men rise at six o'clock, take a bath and rubbing and have a simple beakfast at eight o'clock of fruit, oatmeal or cracked wheat, with a little milk, boiled or poached eggs, baked potatoes, stale bread or toast, and one cup of either coffee or tea. That does not sound perhaps like a strikingly inviting repast, but after a few days they will positively and very properly enjoy it. He forbids fat or greasy food, and allows very little water or liquids of any kind.

After an hour and a half's rest, the real work of the day begins. The club man is started for a long horseback ride or a four-mile walk, the others are made to take a ten-mile walk and run.

They come in dripping with perspiration, are given a few sips of hot water, are rubbed down and recline covered with blankets until they are perspiring again. Then come a moment's shower bath, more rubbing and dinner, which consists of roast or boiled meat, boiled potatoes, cabbage, carrots, parsnips or any other wholesome vegetables, plainly cooked. There are no gravies or fried or sweet dishes or dessert of any kind. After two hours rest, there is running, wrestling, boxing, ball playing and then a sponge bath and a short drive.

Supper consists of cold meat of fowl, poached eggs, baked potatoes, stale bread or toast, cold stewed fruits, and tea.

Rest and diversion follows and then an early bed time comes.

Such a regimen will reduce the weight of a stout man and increase that of a thin one, and can be applied to a greater or less degree at one's own home. It may go on in some degree without interfering with regular business.

ADULTERATION.

COCOAS.

THE DEADLY PARALLEL APPLIED TO THE MANUFACTURERS' CLAIM AND THE CHEMIST'S FINDINGS.

We have already quoted from the report on foods and food adulterants as made under the direction of Professor H. W. Wiley, Chief Chemist of the U. S. Department of Agriculture, and published as Bulletin No. 73, Part Seventh. It must be remembered that all the cocoas examined by the Department were purchased in open market, and all the claims made by the manufacturers for the advantages of their several products, were reprinted. We here reproduce the label on an article called Phillips' Digestible Cocoa, which is much advertised by the Chas. H. Phillips Chemical Company, New York, and in parallel column the results of the examination:

This package was purchased May 22, 1891, of G. G. Cornwell & Son, Pennsylvania avenue, Washington, D. C. It weighed half a pound, and cost forty cents. The label on it read as follows:	THE CHEMIST'S FINDINGS.
Phillips' Digestible Cocoa. "Cocoas and chocolates, notwithstanding their recognized nutritious properties, can not be used by many, because of the difficulty attending their digestion, on account of the large proportion of fat which they contain; and many manufacturers, seeking to overcome this dificulty, express and remove this fat (cocoa butter) in the preparation of the cocoa from the bean, and furnish that which remains (or the fiber) as a beverage. The fat of the cocoa, however, is one of the most vitalizing principles, and its removal in any degree manifestly impairs the value of the cocoa as a nourishing drink. In this preparation the fat is wholly retained, and emulsionized—or reduced to a condition for easy assimilation—by means of pancreatine (nature's digester of fats). The pancreatine (our	1. The husk is probably all present. (The husk is like straw indigestible.) 2. Contains much added wheat flour. 3. Amount of fat contained 28.72 per cent. (Natural cocoa contains 50 per cent.) 4. Contains 37 per cent of added cane sugar. REMARKS. If 28.72, the percentage of fat present, is added to 37, the percentage of cane sugar added found in this preparation, it leaves very nearly 34 per cent to be accounted for by added wheat flour. This would indicate that we have here a preparation composed of about one-third cane sugar worth four cents a pound, one-third flour costing less, and selling for sixty cents a pound, a good profit surely.

own manufacture) is intimately combined with the cocoa—acts while it is being made up for the cup—and the fat is so completely digested by it that a continued use of this preparation will not distress the most sensitive stomach, nor cause headaches; and no grease will be seen coming to the surface, as with the ordinary cocoas or chocolates. All the nutriment of the richest cocoa may therefore be had by the most delicate and without disagreement. A small proportion of the soluble phosphates as found in wheat is added, as supplying increased nutriment and aiding the digestion. The phosphates meet particularly well in their combination with cocoa conditions of debility and waste, and, besides imparting their well-known tonic properties add a very grateful delicacy of flavor."

The chemist adds the remarks that "in some of these samples, sugar and starch are used to a deplorable extent," "in adding 'phosphates as found in wheat' the manufacturer of this sample seems to have overlooked the fact that the husked cocoa bean is fully as rich in phosphoric acid as is wheat".

Further comment on our part is unnecessary. The intelligent reader will be able to judge for himself how far the claims of the manufacturers are borne out by the chemist's examination.

In our next number we shall report the results on some of the others, especially those whose claims are the loudest and strongest, for we find these generally disproven by the analysis.

ADULTERATED COCOA.

The following are the methods pursued in England to make various cheap cocoas. Some of these goods so prepared are extensively advertised in the United States. As the selling price in England is affixed, it can readily be seen at what enormous profits these adulterations are sold here. Beware of them.

SOLUBLE COCOA POWDER.

To retail at 6d per pound (12½ cts.)

45 lbs. Sago Flour.
30 " Brown Sugar.
7 " Trinidad Cocoa.
7 " Surinam Cocoa.
7 " Shell Dust.
1 " Brown Coloring.
Treacle (rather more than half a pailful).

Method:—Put the sago and the cocoa into the mixer and let it run for about a quarter of an hour, taking care that it is only just warm, subsequently adding the shell dust. Turn the treacle, coloring and sugar into the pan, place this on the furnace fire and warm up to about forty degrees (just sufficient to make a syrup), then pour this into the mixer on the other ingredients, and let it run until the whole are thoroughly amalgamated. Take out while damp, and put through a twenty-holed sieve when still warm. Lay the powder out to dry, and then sieve again. At the end of this operation it is ready for packing.

HOMŒOPATHIC COCOA.

To retail at 1s per pound (25 cts.)

38 lbs. Pulverized Sugar.
30 " Trinidad Cocoa.
30 " Ground Arrowroot.

Method:—Put the cocoa and arrowroot into a mixer heated to about 60 deg., and let it run for an hour. Then add the sugar gradually, and again allow the mixer to revolve for a short time. Take out the powder, let it dry, and then put it through the steel rollers. Subsequently force through a twenty-five-holed sieve, and pack as usual

BEST ROCK COCOA.

To retail at 1s 4d per pound (33 cts.)

20 lbs. Trinidad Cocoa.
16 " Icing Sugar,
10 " Sago Flour.

Method:—Put the sago and cocoa into the mixer and let it run for about two hours, adding the sugar gradually. At the end of this time take out the mass and put it in a cool place to dry. Afterward put it through the "rock mill," and then pack in a dry cool room.

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A correspondent has written to me asking the reason why cocoa "thickens" in the cup when made with boiling water. It appears he had bought a consignment of loose cocoa at a low figure, and now finds that it lacks good flavor, and becomes almost thick like treacle when prepared.

As my correspondent caters for a large number of weary travelers, pleasure parties, etc., it is a serious matter to him, for he finds that numerous complaints are made by his customers. There can be little doubt that the cocoa had been adulterated with starch. Pure cocoa does not become very thick on being mixed with boiling water, as it only contains about 10 per cent of starch. If cocoa becomes somewhat viscid on the addition of boiling water, adulteration with starch may be suspected. The thickening is due to the gelatinization of the starch granules by heat with an absorption of moisture. The change is precisely similar to that which occurs during the preparation of starch mucilage for laundry purposes. When buying large quantities of cocoa, tea and coffee in bulk it is safest to have a specimen examined by an analyst, who will for a small fee ascertain whether the sample is pure. In ordinary cases it is best for bakers and confectioners to use cocoa made by some well-known and reliable firm —*Exhange.*

NOTE ON PAYEN'S PROCESS FOR THE DETECTION OF FREE MINERAL ACIDS IN VINEGAR.

According to Payen's process, 100 cc. of the suspected samples are boiled for twenty or thirty minutes with 0.05 gm. of potato starch. If no mineral acids were present the starch will have been but little acted upon (dissolved), and will consequently show with the iodine test; but the presence of even two parts per thousand of sulphuric acid is said to be sufficient to convert all the starch into dextrin or glucose, and even then it will give no true coloration with iodine. This process is almost a standard one, and has scarcely even been attacked; but F. Corril a French analytical chemist, has stated recently that he cannot recommend it, as he still obtained the starch reaction with vinegar containing four parts of sulphuric acid or five parts of either hydrochloric or nitric acid per thousand. Hence vinegar dealers, unless their own experience agrees with Payen's for varying percentages of adulteration, should not rely too implicity on this test.—*Amer. Drug.*

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The Guest—"Say, there's a fly in this shortcake." The Pretty Waiter Girl—"Poor thing!"—*Chicago News.*

ADULTERATED HONEY.

We have received two more communications on this subject from Professor H. W. Wiley and Mr. Charles F. Muth. As there seems to us to be a misunderstanding of terms between these gentlemen, which we believe will be cleared up by the exchange of a few explanatory letters, we have thought it best to withhold both letters until next issue, when we hope to be able to publish a retraction of some of the harsh things which have been said.

HOUSEHOLD.

THE FAMILY WASHING.

HOW TO DO IT PROPERLY AND WELL.

By Mrs. J. G. Baker.

[Concluded,]

Take hot water from the boiler, and clean, cold water (rain water if possible) and wash them. Put into the boiler a quarter of a pound of soap cut in small pieces and two ounces of soda, and fill it three parts full with clean, cold water, and then put in the fine things which have just been washed. The water must be quite cold or tepid and the muslins must remain in it at least for a quarter of an hour after it boils. You should have a stick about two feet long to push the linen in the boiler and to lift it out. Use an earthenware jug to lift water from the boiler, and on no account let any iron come near the linen. When finished it must be plunged into clean, hard, cold water, and well rinsed and examined to see if it is quite clean—any soiled spots must be rubbed. When wrung out of this water, it must be plunged in another tub of clean, hard water in which a little blue has been dissolved; it must be stirred about in this water, wrung tightly, and then hung out to dry.

The rest of the linen must be washed in the same way, using plenty of clean water, and renewing that which is in the boiler when necessary. Leave the coarsest things until last, and use a little more soda when boiling them.

Wring everything and hang out to dry as quick as possible, and have two clothes-baskets, each with a clean towel at the bottom, that the wicker work may not mark the linen; use one for taking out the wet clothes and keep one ready to put the dry things in, as they should be taken down from the lines as soon as they are nearly dry.

When all the washing is finished, it is a good opportunity to thoroughly clean any chopping boards whilst there is an abundance of soapy water. Tins and stew-jars, which are difficult to wash clean, may be boiled in strong soda and water in the boiler, and thoroughly rinsed afterwards in clean, cold water. The floor of the scullery should be washed, and the boiler dried out and left quite clean.

FOLDING, STARCHING AND IRONING.

Remove the linen from the lines as soon as it is nearly dry, and keep it perfectly clean until folded, and allow no dust to come near it.

Folding must be done on a spotlessly-clean deal table, and a basin of clean cold water must be at hand to sprinkle any of the things which require it. They must not be very wet, but sufficiently damp for the hot iron to remove all creases.

Keep all the articles of the same kind together; fold them as flatly as possible, right side out, selvedges together, and pulled straight, and the linen of a width that will suit the size of the mangle. Sheets and tablecloths should be shaken and pulled straight by two persons standing at opposite ends and taking hold of the hems. When folded the name should be on the outside. Stocking heels should be spread out and laid flat, and all woolen articles kept together and hung up to dry out of doors or near the fire as soon as they are mangled. The topbands of flannel petticoats and cuffs and collars of flannel shirts should be ironed before being hung up. As the things are folded, they should be laid evenly in a basket on the top of each other and covered with a clean towel, and put out of the way of all dust until someone is ready to mangle them. After being mangled, the kitchen towels should be hung up to dry, and everything else which is not intended to be ironed, returning to the basket all things to be ironed. Sheets and bedroom towels, and even tablecloths, if well and carefully mangled, require very little, if any, ironing; and after they are quite dry and ready to put away one turn in the mangle will give a gloss. If possible, these things should be mangled on the evening of the day on which they are washed, and if hung up directly will probably be dry by the following morning, and the clothes-horse be free for the ironing things. Articles to be mangled and ironed should remain in the basket at least two hours after being folded, so that they may be equally damp all over—twelve hours or more does them good. All the pocket-handkerchiefs, napkins and body linen should be mangled before being ironed; it is of no consequence whether this is done on the evening of the washing day or early on the following morning. They should have three or four turns in the mangle, and some things should be opened out and the inner side changed so as to be smoothed by the rollers. In mangling, the art is to keep things quite flat and without creases.

STARCHING.

Starch should be dissolved in tepid water, and stirred whilst boiling water is being poured on to it. If properly made it will thicken whilst the water is being poured and if not stirred all the time it will be full of lumps. Half an inch of a composite candle dissolved in the starch improves it. Starch made in this way is used for large articles, such as gowns, white petticoats, or tablecloths; six ounces of starch is sufficient to starch four long window curtains. The articles to be starched should be dry, and dipped into the starch whilst it is warm, wrung out tightly, and again dried. An hour before ironing them they should be sprinkled with cold water and folded up tightly in a clean towel, and in half an hour, when they are softened, pulled quite straight and rolled up tightly and wrapped in the clean towel until the ironer is ready for them. Another way, which answers for small things, is to dissolve three ounces of starch in a pint of cold water and to wring linen collars, cuffs and shirt fronts in the mixture, and spread them out on a clean towel and roll them up in it for an hour or more before ironing.

IRONING.

A thick blanket folded double about one-and-a-half yards by one yard in size must be laid on a deal table, over this a clean white calico cloth. The flat iron must be rubbed quite clean at first by using a little bath-brick on a piece of brown paper and next by dusting with a cloth kept for the purpose.

In commencing ironing, the article must be spread smoothly on the cloth steadied with the left hand, and the hot iron quickly passed over it without making creases; it must then be folded with the name outside and hung up immediately on the clothes-horse to dry. Embroidery should be ironed on the wrong side in order that the work may be raised. Starched things require more skill in ironing than plain things, which can only be obtained by practice; they should be dry, or very nearly so, when finished. A small board covered with flannel is often used for shirt fronts, and a larger board tapering toward one end, called "a skirt board," is used for gowns; it can be pushed through the inside of the dress and the skirts spread out upon it, the ends of the board resting on two tables or the backs of chairs.—*The Housewife*

Excursion Cake.—Six pounds flour, 4 lbs. currants, 3 lbs. castor sugar, 2½ lbs. margarine, 2 lbs. mixed drained peel (cut fine), 1 lb. chopped blanched almonds, 3 oz. baking powder, 10 eggs, 1 qt. milk, oil of spice.

Sift the baking powder with the flour, rub in the margarine, mix in the sugar, and make a bay. Whip the eggs to a light froth, turn this into the bay, stir in the milk and sufficient flavoring, and make a soft dough. Mix the currants, peel and almonds, and mould them in, and bake the whole in well-buttered oblong tins.

Florida Cake.—Five pounds flour, 3 lbs. castor sugar, 3 lbs. margarine, 1 lb. drained orange peel, 1½ oz. volatile salts, 20 eggs, 1 pt. milk, orange flavoring.

Beat the margarine and sugar to a light cream, and stir in one pound of the flour. Whisk the eggs to a froth, stir it into the cream, and add the flavoring. Sift the remaining flour and work it in. Then powder and dissolve the salts in the milk and mix it in. Stir in the peel (previously chopped fine), and fill the mixture into deep-edge tins. Bake in a warm oven.

Good Household Cake.—Three pounds flour, 1 lb. corn meal, 1 lb. butterine, 1 lb. castor sugar, 1 lb. currants, 8 oz. raisins (cut small and stoned), 1½ oz. baking powder, ½ oz. ground cinnamon, 6 eggs, 1 pt. milk.

Beat the margarine and sugar to a light cream, and work in one pound of the flour. Whisk the eggs to a froth, stir it into the cream, and then add the milk. Sift the remainder of the flour with the corn meal and baking powder, and work it lightly in; lastly, incorporate the fruit. Fill the mixture into tins and bake in a moderate oven.

To Clean Carpets.—If brooms are wet with boiling suds once a week, they will become very tough, will not cut a carpet, and will last much longer. A handful or so of salt sprinkled on a carpet will carry the dust along with it and make the carpet look bright and clean. A very dusty carpet may be cleaned by dipping the broom in cold water, shaking off all the drops, and sweeping a yard or so at a time. Wash the broom and repeat until the entire carpet has been swept.

Mosquitoes (protection against).—The following mixture protects hands and face (also pates, if any) against mosquito visitation:

Spir. camphor	30 grammes
Oil eucalyptus	5 grammes
Spirit of soap	15 grammes

Apply a few drops to the exposed parts.

French Kid.—Mrs. Callahan—Oi want to get a pair o' shoes fer the little bye.

Clerk—French kid?

Mrs. Callahan (indignantly)—Indade not. He's me own son, born an' bred in Ameriky.

A Robust Yeller.—"I suppose the baby is a delicate pink—eh, Bronson?"

"No, he's a robust yeller," replied the proud and sleepy father.

MISCELLANEOUS.

LOST KEY TO A CIPHER.

NEWS THAT THE SECRET OF THE HITTITE INSCRIPTIONS IS FOUND.

News has reached the Johns Hopkins University through private sources that the hitherto unfound key to the Hittite inscriptions has been discovered by a clever young scholar in Germany, whose name is desired to be withheld for the present. Similar achievements of not less importance have been made before this by persons no more conspicuous—as for example the unfolding of the secret of the Assyrian hieroglyphs by a schoolmaster at Hamburg named Grotefend, who accomplished the task on a wager which had reference to his skill in working out ciphers. This—if the information quoted is correct—is the third great riddle of this sort that has been solved during the present century. The successes obtained in deciphering the Egyptian inscriptions and the cuneiforms of Babylon have already thrown a bright light upon a third mighty empire of the past, which now bids fair to leap into historical view from out of the darkness in which its memory has been shrouded.

Respecting the empire of the Hittites, about whom so much is said in the Bible, practically nothing was known until within a few years. The Egyptian and Assyrian inscriptions, however, when they came to be read, were found to be filled with references to them and accounts of their doings, together with many portraits of them, both painted and sculptured. From these data it has been learned that they were a great military power, a nation of warriors, whose country extended from the Euphrates River to the Ægean Sea. So strong were they that the Pharaoh who ruled Egypt at the time of the Exodus was obliged to treat with them on equal terms and to respect them as an equal. They were of light complexion and shaved their heads partly, wearing pigtails and having long thin mustaches like the Chinese. Their eyes were slightly slanted and their facial angle was oblique. They wore queer peaked hats, fingerless gloves, and boots with exaggerated points that curled upward toward the knees. Curiously enough, precisely such boots and gloves are worn to this day by the people in parts of the region which they inhabited.

The first purchase of land mentioned in history was made by Abraham, who, according to the Bible, bought a bit of ground for a cemetery at Hebron from the "sons of Heth"—i. e., the Hittites. It is interesting to know that at so remote a period silver was employed as currency—the cash equivalent given being 400 shekels of that metal—and that it was weighed out in a balance. A notion of the geographical extent of the country occupied by this nation, which was for a long time ahead of its Assyrian and Egyptian neighbors in the arts of war and peace, is obtained from the fact that in the Assyrian inscriptions alone mention is made of not less than 300 Hittite geographical names. Yet this great empire of the past has been historically ignored until lately, and it is only since 1870 that scholars have attempted to decipher the strange hieroglyphs left behind as its only surviving memorials. In these investigations Americans have been conspicuous, the actual beginning having been made by J. Augustus Johnson, of the United States Consular service, and the Rev. S. Jessup, a missionary.

These two gentlemen, in 1870, came across some very extraordinary Hittite inscriptions at Hamah in Syria, which at once aroused the attention of archæologists everywhere. Some of them were carved on stones that were built into the walls of dwelling-houses. Repeated efforts were made to secure them, or to get copies in the shape of "squeezes"; but the superstitious Mohammedans, regarding them as sacred, would not permit this. Scholars who made the attempt were mobbed by angry crowds, and their lives even were threatened. Finally, with the assistance of a Turkish official of unusual intelligence and honesty, the stones were obtained by purchase and carried away, one of them being so large that fifty men and four oxen were required to drag it a mile in a day. Two sets of squeezes were made from the inscriptions, one of which is at present deposited in the British Museum. Many attempts have been made to decipher them, Professor Sayce of Oxford, the Rev. Dr. William Wright, and Major Claude Condor of the Royal Engineers having all claimed more or less success; but their claims are not recognized as established.

According to Dr. Wright, to whom the writer is chiefly indebted for the following information, early Egyptian records, inscribed on their monuments and on papyrus scrolls, refer to the Hittites as hereditary foes on the northeast frontier. For century after century wars with them were carried on with varying success. In the year 1650 B. C., Thothmes I ascended the throne of the Pharaohs and began a struggle with the Hittites which was maintained for nearly 500 years, with occasional intervals of peace, by his successors. When Thothmes III became king, he found things in rather bad shape. His predecessor was a queen, and during her reign the neighboring peoples, of which the Hittites were most important, had declared themselves independent of Egypt, refusing to pay tribute. Thothmes III was a great warrior. He has been called the Alexander the Great of Egyptian history. Adopting an aggressive policy, he began a long series of campaigns, of which thirteen are sketched on the monuments of that period, describing the lines of march, the rivers crossed, the cities stormed, the booty taken, the tributes imposed of silver, gold, weapons, horses, wine, spices, and so forth. At length he led an army against the strong city of Megiddo, on the Kishon, where, according to the historical account, the Hittite king of Kadesh had gathered together "the kings and their peoples from the waters of Egypt to the riverland of Mesopotamia, and they obeyed him as their chief."

Then there was a great battle. The confederates were arrayed near Megiddo, and against them the Pharaoh drew out the might of Egypt. Fighting was begun on the twenty-fifth anniversary of the Pharaoh's coronation. He beat the confederates at every point, and they fled, leaving their chariots behind and a vast amount of plunder, upon which the victorious army fell, permitting the enemy to escape into the city, which they defended with such determination that, after a long siege, they were permitted to surrender with honorable conditions. The inscriptions record in detail the booty captured, which included a chariot plated with gold belonging to the Hittite king and 924 other chariots; they also mention the tribute imposed, and give a list of 119 towns and nations represented by the confederacy. Nevertheless, during after years the Pharaoh was obliged to renew the fight against the Hittites again and again. On the death of Thothmes III, in the year 1566 B. C., the Hittite power, which had been checked during his reign, became formidable again, and fifty years later a formal treaty of peace was concluded between Rameses I and Saplel, the Hittite king.

In the year 1356 B. C., Soti I came to the throne He was the father of the Pharaoh of the Oppression, and he renewed the war against the Hittites. His son, Rameses II—known as Rameses the Great, the "Sesostris" of the Greeks—carried on the fight, and led a mighty army against the Hittite city of Kadesh, on the Orontes. He took with him on the campaign his poet laureate, named Pentaur, who celebrated the achievement in an heroic poem which has come down in several editions, being found inscribed on an extant papyrus roll and also in conjunction with splendid battle scenes on the walls of temples at Abydos, Luxsor, and elsewhere. This work in verse is the oldest heroic poem known; having been written 3200 years ago. A prose account of the same compaign has been preserved. Notwithstanding the vainglorious figures of speech with which these reports are filled, it is evident from a persual of them between the lines that the battle fought at Kadesh was drawn, the result being a treaty of peace.

The shock of each Egyptian invasion of the Hittite country seems to have exhausted itself against the frontier cities of Kadesh and Carchemish. The latter place was on the Euphrates and is now known as Jerablus, forty miles to the northeast of Aleppo. But the empire of these hereditary foes extended over the broad plains and highlands of Asia Minor, and there were always fresh Hittite armies and abundance of Hittite wealth to enable this wonderful and highly civilized nation of antiquity to withstand the might of the Pharaohs for a thousand years. It is noticeable that the Egyptian inscriptions refer to the gods of the Hittites with respect. The Hittite religion was apparently drawn from Babylon, and some of their deities were worshipped with abominable rites, young girls being devoted to wickedness in the name of certain divinities, while devotees surrendered their children in flames to Baal, the screams of the innocents being drowned with trumpets and drums. Sculptured and pictured representations of the priestesses who served at the shrines of the goddesses of War and Love, Astargatis, bearing double-headed axes, shields and bows, are supposed to have given rise to the Greek myths describing female warriors of the East, called Amazons.

Thus far the Hittites have only been considered from the Egyptian point of view. The inscriptions left behind by the Assyrians show that they also were continually at war with this martial people. After the struggle for supremacy between the two great nations had continued for 500 years, the Hittites in 1130 B. C, were still paramount from the Euphrates to Lebanon. From that time up to near the end of the eighth century before Christ the Assyrian kings were kept busy with repeated campaigns against the Hittites, who appear never to have known when they were whipped. Year after year, according to the records written in imperishable stone by the Assyrians themselves, the latter were obliged to renew the war, capturing the same cities again and again, only to relinquish them for lack of power to mantain their conquests. But the empire which had for so long a time successfully fought against such powerful neighbors, maintaining itself upon an equality with them, was at last on the verge of dissolution. In 1721 B. C. the Assyrian king Sargon came to the throne, and four years later the long conflict was brought to an end by the overthrow of the Hittites at their eastern capital, Carchemish. Thus fell the mighty nation which had supported existence for a period of longer duration than the empires of Babylon or Assyria, Greece or Rome.

What has been ascertained from these outside sources of the history of this remarkable people is sufficient to make the world eager to learn their account of themselves, doubtless very fully given by the sculptured and painted inscriptions which they have left behind them in great numbers. Such memorials of the Hittites are scattered all over Asia Minor. Many, either the originals or reproductions, are now in the possession of museums and other scientific institutions. It has only remained to discover the key for deciphering them, and it is to be hoped that the news of the discovery of this long-sought secret will prove to be correct. There is no doubt that much of the art which until recently was attributed to the Assyrians is actually of Hittite origin. Mr. Gladstone not very long ago pointed out the fact, until then unknown, that there is to be found in Homer a reference to the Hittites. They are mentioned all through the Old Testament. King David and King Solomon are both spoken of as having taken Hittite wives in the eleventh chapter of the first book of Kings, and it is recorded on the same authority that Solomon imported horses from Egypt and sold them to the Hittites and the Assyrians. It is rather curious to observe that the patterns of the priests' dresses on the Hittite monuments are in fashion to this day in Cappadocia.—*Portland Transcript.*

* * *

TO KEEP RAZORS IN ORDER.—Somebody in England has found out that finely-ground coke is the "original diamond razor paste," and gives a formula for preparing it to use as a hone. As a man who has shaved himself every day for nearly thirty years, and to whom, therefore, the condition of his razor is of prime importance, the editor of the *National Druggist* would say to anybody who may be inclined to follow his advice, "Don't"—with a big D. Never put your razor on anything, when you want to sharpen it, but a German razor hone, or a Hot Springs (Ouachita) hone. Of the latter, be it remembered, there are two grades, one somewhat coarse, which answers for knives, or to remove a "hack" in a razor, and the other exceedingly fine, so fine, indeed, that when properly used it puts an edge upon a razor so keen as to obviate all necessity for the subsequent strapping. The only strap that should be used is a piece of French calf, and this should be stretched upon a piece of wood so tightly that there should be no chance whatever of its rising, never so little, behind the blade of the razor as it is pushed (back foremost) over it. To enjoy the luxury of a clean shave, pass your razor a couple of times backward or forward, edge first, over the hone. Pass it lightly two or three times, back first, over the strop. The face should be well covered with a thick soap lather before you commence sharpening your razor. By the time that you have the latter in order the beard will be softened, and you can remove it with the greatest ease. Nothing answers in place of lather. We have tried vaselin, glycerin, cold cream, various shaving pastes, and other devices of the devil, suggested by interested and disinterested parties, but have discarded them all, and gone back to good old soap. After shaving, wash the face in water, *just as hot as you can bear it.* If you have shaved a little too closely, spray with a little Florida water or cologne before washing. The writer shaves every morning, the first thing on arising, and for twenty years has not had a rough or chapped face. His beard, we may remark, is of the red, wiry kind, as stiff as bristles—the most difficult of all to shave.

* * *

COULD EASILY SPARE IT.—Aunt Staylong (going away)—Can't ye lend me a trunk strap, George?

Mr. Kidder—Well, now, we haven't one in the house.

Johnny Kidder—But there's a strap hanging in the woodshed, Aunty. I'll get it for you.

BURDETTE ON EASTER EGGS.—For one thing, I observe that "Easter eggs" are quite a feature of the festival. Now, when I was a boy we had no such nonsense. We had "aigs" always. "Easter-aigs" usually pronounced in one word. We used to color them with calico; fast colors. A week before Easter somebody went to the store to buy the calico with which to print the "aigs" "Is this fast colors?" And the clerk would lift his hand to heaven and swear that the deluge couldn't fade one ray of the brightest tint in the figure. After securing his affidavit, we would tie the "aig" up in a bit of that print and boil it. The calico would come out of the ordeal pure, spotless, whiter than snow, and the "aig" would be a thing of beauty in dots and leaves and twigs.

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She—"I see Miss Livingston has become Mrs. Livingston-Jones." He—"Yes; united in the bonds of hyphen."—*New York Weekly.*

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SOLVING THE GREAT RIDDLE.

An ingenious theorist has recently commanded a vast deal of popular interest for his alleged discovery of an infallible means for solving a riddle which mankind have been ardently and vainly puzzling over ever since the time of Adam. He professes to tell all about a woman's temperament, disposition and character, just from a critical examination of her hair. Is it possible he can do so much from merely a capillary sample, when myriads of philosophers have attained such unsatisfactory results from study of the whole woman? Well, it is worth looking into—as is everything in this tempting field of research. One does not need to be superstitiously credulous, to the extent of looking for the white horse popularly supposed to go with her, to feel confidence that the red-headed woman has a vivacious temper; and it is hardly a violent presumption that one with silvery white hair is probably no longer exactly in the first bloom of youth. But beyond that, perhaps this newly risen professor of occult wisdom doth protest too much. If we are to believe him, the woman with coarse, strong, straight black hair is the one who rules her husband as with a rod of iron, makes life a burden to the imprudent wretch who has had the temerity to become her son-in-law, and is likely to be known as the terror of the neighborhood; the girl with golden locks is prone to be vain and fickle; the one with wavy hair has vivid artistic sensibilities and predictions; and the one with soft, silky, brown tresses is the gentle, affectionate, right-minded maiden whom it would be well to marry. And he has a lot more of the same sort of dogmatic affirmations, which he has formulated as the rules of a science, by conformity to which one may be sure of selection of the fittest, and none other, for life-partnership, or acquaintance, and the wise exclusion from the student's visiting list of all one should prefer not to know.

But, alack and alas! what young man who ever really "fell in love" was so methodical and prudent about it as to apply judicious analysis to his charmer and determine whether it would, or would not, be safe to arm her with a marriage certificate? He who could do so needs no sage to guide his guileless fancy, for he is not one to be led astray by the seductions and blandishments of the wrong girl, whatever may be the tint and quality of her hair. Search his pockets and you will find, not mushy "lines to his mistress' eyebrows," but a practical memorandum of her financial value and prospects.

But, seriously, is there anything in this notion that one may understand a woman by studious and "knowledgeable" contemplation of her hair? Something, very possibly, and much more there would be, doubtless, could we have any assurance that the capillary index is as nature supplied it to her. But Art tampers with the witness and the testimony then ceases to be reliable. It is quite true that the very fact of recourse to art for certain changes in natural conditions is, in itself, in many instances, decidedly indicative. For instance, could one ask for a better sign of warning than the head of bleached and dyed dry yellow hair, at the roots of which one readily perceives an undergrowth of another tint than that conferred by nature? or the dead black ringlets of the woman wrinkled and leathering with age? The trouble in applying the professor's rules, outside these patent exceptions, must be, however, that charms bestowed by art are not always to be readily detected. No mere man will be ever wise and shrewd enough to know if hair that is silky, soft, glossy and of the vivid brightness of youth is really so, because it is young and grew that way, or if it was brought to such adorable perfection by the application of Ayer's Hair Vigor. The very existence of that preparation, and the fact that its efficacy is so generally recognized by ladies, must present an insurmountable obstacle to the universal application of the professor's theories. Ayer's Hair Vigor does not dye old hair to make it imperfectly simulate youth, but actually makes it young again, by nourishing its growth and, whatever the age or tint of hair to which it is applied, imparts lustre and softness attainable through no other application.

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◆

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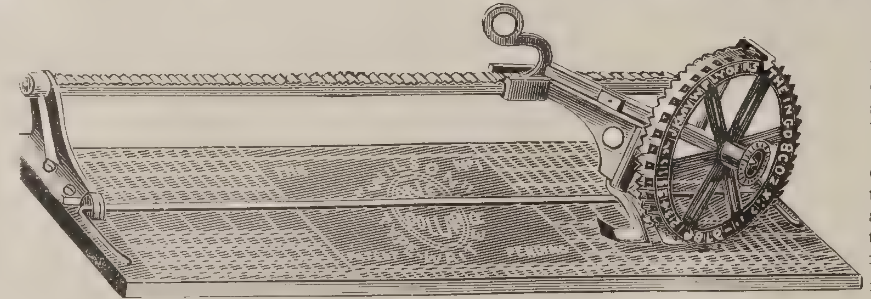

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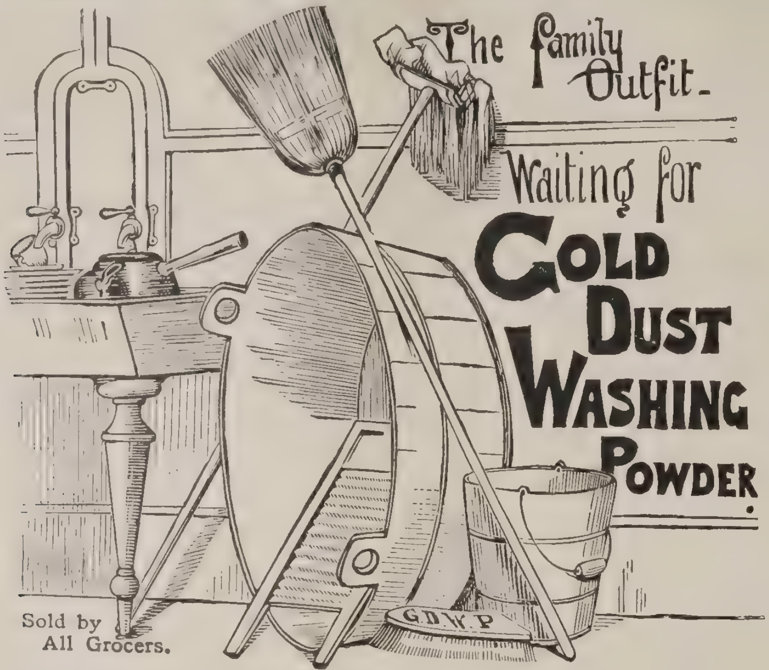

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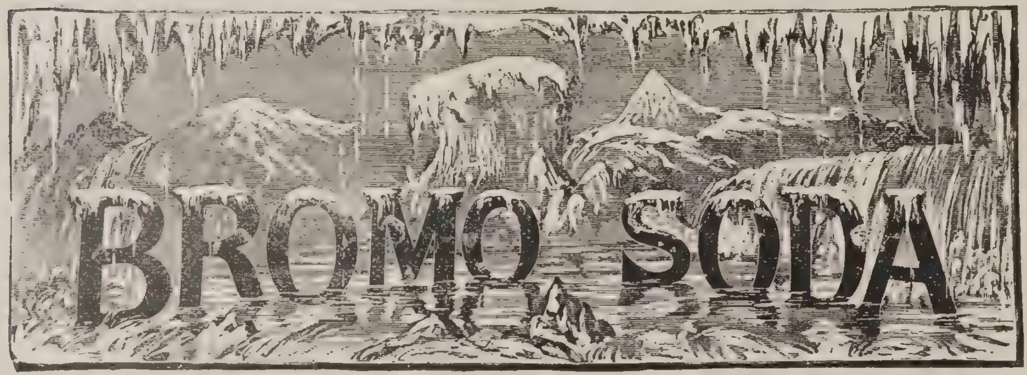

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CONTENTS.

Page
Adulterated Licorice ... 277
Adulteration ... 277
Adulteration of Wines ... 277
Book Notices ... 279
Coldness of Space ... 279
Coloring Milk ... 278
Correspondence ... 278
Different Preserving Preparations ... 278
Disinfectant Mixtures ... 275
Editorial ... 273
Colera—Food Investigation.
Henbane for Celery Seed ... 277
High Meats ... 276
Home Doctor ... 276
Household ... 276
Hygienic ... 276
Insect Nuisances ... 279
Medical ... 275
Microbicidal Antiseptics ... 275
Miscellaneous ... 278
Practical Education ... 278
Pulse the ... 276
Unfermented Beers ... 276

CHOLERA.

The papers are full just now, of news about the cholera, yet we have not seen any information published that would give the ordinary reader any idea of what the dreaded disease is, beyond the fact that it is a scourge. The AMERICAN ANALYST believes that it would be far safer and more satisfactory for its readers to know something more of the nature of this disease than to grope in darkness and allow the imagination to fill up the void.

Cholera, derived from two Greek words meaning bile and to flow, includes two distinct diseases—namely, simple cholera and malignant cholera. Simple cholera, also known as summer and autumnal cholera, is the cholera described by ancient medical writers and bears some striking resemblances to genuine Asiatic cholera. The chief symptoms in well-marked cases are vomiting and purging either together or alternately, the seizure is usually sudden and violent, the effect upon the system is rapid and alarming and death may result. Generally, however, the attack is arrested and recovery soon follows. Attacks of this kind are of frequent occurrence in summer and autumn in almost all countries, and are especially liable to occur when cold and damp alternate with heat. The disorder may prevail so extensively as to constitute an epidemic. The causes are in many cases errors in diet, particularly the use of unripe fruits and excessive drinking of cold liquids during perspiration. Sometimes these outbreaks can be traced to the use of impure water or to noxious emanations from the sewers. Ordinarily the well-known cholera mixture and a careful diet will speedily produce an improvement, but in times like these, when Asiatic cholera is threatened, it is safest to obtain medical aid and advice.

ASIATIC CHOLERA OR MALIGNANT CHOLERA is probably the most severe and fatal of all diseases. This form of cholera belongs originally to India, where epidemics of this disease have been known to occur at various times for several centuries. Investigations of this disease have established the following points respecting the nature and mode of propagation, which are generally admitted by the best authorities:

1. Cholera is a specific disease depending upon the action in the human system of a morbid material, a bacillus, comma-shaped, and first accurately described by Dr. Rudolph Koch of Berlin, which is orginally generated in certain parts of India, particularly in the delta of the Ganges.

2. This infective material is capable of spreading from its center of origin indefinitely and thus cholera has appeared in an epidemic form in almost all countries, and further that the disease may become acclimatized (endemic) in some places.

3. That when it spreads abroad the vehicle of its transmission is the discharges from the bowels of persons already affected; and that from these the cholera-infecting matter is exceedingly apt to be diffused through the air, to contaminate water, and to become attached to clothing, bedding, furniture, etc., and in these various ways to find ready entrance into the bodies of healthy persons, where it is capable of developing the disease in a more or less severe form according to the quantity introduced or the receptive condition of the person.

4. That cholera is thus in a certain sense contagious.

5 That overcrowding, uncleanness, and other insanitary conditions, particularly in the presence of decomposing organic matter, afford the conditions favorable to the multiplication of the cholera matter, and thus tend to spread the disease, although of themselves incapable of originating it.

The symptoms of cholera are usually divided into three stages, but they cannot always be distinctly recognized. The first or premonitory stages consists in the occurrence of diarrhœa, similar to ordinary summer cholera, but in Asiatic cholera there is at first an absence of vomiting. This generally lasts two or three days and may then pass into the more severe phenomena, or may itself prove fatal. The second stage is termed the stage of collapse and sometimes comes on suddenly with the diarrhœa of the most violent character. These discharges are whey-like and termed the "rice-water" evacuations. This is soon followed by copious vomiting, accompanied by violent pains at the pit of the stomach and with intense thirst. The symptoms now advance with rapidity—cramps of the muscles come on and occasion great agony while the signs of collapse appear. The surface of the body becomes cold and assumes a blue or purple hue, the skin is dry, sodden and wrinkled, indicating the intense draining away of the fluids of the body, the features are pinched, the eyes deeply sunken, the pulse imperceptible and the voice reduced to a hoarse whisper. In this condition death often takes place in less than one day, but in epidemics cases are frequent where the collapse is so sudden and complete as to prove fatal in one or two hours, even without any great amount of vomiting or purging. In most cases the mental faculties are comparatively unaffected, although in the later stages there is more or less apathy. Reaction may take place, and this constitutes the third stage. It consists in the arrest of the alarming symptoms and the gradual improvement in the patient's condition. Relapse may take place, but recovery may follow. Many other complications may arise during the progress of the convalescence.

The bodies of persons dying of cholera are found to remain long warm and the temperature may even rise after death. Peculiar muscular contractions have been observed to take place after death, so that the position of the limbs and even of the whole body may become altered. The soft textures of the body are found to be dry and hard and the muscles of a dark brown appearance. The blood is of a dark color and tarry consistency. It is generally reckoned that about one-half the cases of fully developed cholera prove fatal, death generally taking place in from twenty-four to forty-eight hours. The mortality is generally greatest at the beginning of the epidemic and among children and aged persons.

The public is reminded of the mortality of previous cholera epidemics, which do not appear so very alarming. In London the visitation of 1832 produced 5,275 deaths in all, or 35 to each 10,000 of population; that of 1849, 13,611 deaths, or 59 to each 10,000; and that of 1866, 10,708 deaths, or 43 to each 10,000. The influenza epidemic claimed 8,000 victims, and few people were badly scared. The influence of filthy conditions in developing cholera is displayed in a recent return from Kashmir relating to this year's outbreak. The deaths were 5,736 in a total population of 124,000. The rate was equivalent to a mortality of 80,000 a week in such a population as London's against an actual mortality there of 300 a week, during the epidemic of 1866.

Cholera is an unpleasant visitor, no doubt; still, with attention to cleanliness and, above all, with care to avert pollution of the water supply, it need not prove in such a town as New York much more destructive than the late influenza. It is more to be feared by communities which have not yet supplied themselves with the prime necessary of life, a copious supply of pure water, all of whose sources and reservoirs can be kept free from even the possibility of choleraic pollution.

At a conference of leading medical men of Berlin the opinion was unanimously expressed that an epidemic of cholera was unlikely. It was suggested, however, that everybody should take 30 drops of muriatic acid daily in a tumbler of water, and that care should be taken to keep flies away from food.

The Chief Sanitary Board of Austria has published a statement regarding the value of a series of new disinfectants which, in view of the cholera danger, are of much interest. The special attention of the public is drawn to the so-called lysol, which is compounded of caustic potash, oleic acid and cresolen.

A solution compounded of lysol is stated to be sufficient to annihilate the common bacillus at the shortest notice. If so, it will be a more effective remedy than carbol. It is not at all of a corrosive nature.

On the contrary, if mixed with a proper quantity of water it renders the skin very smooth, qualities which render it especially useful for washing the hands, linen and floors and for similar purposes.

Moreover, besides possessing cleansing power in an eminent degree, it is much less poisonous than carbol. The sanitary board here has, therefore, ordered lysol to be classed among the officially recommended remedies.

So it may be fairly assumed that with this brief explanation of the symptoms and peculiarities of cholera, it does not seem so dangerous after all. With care as to personal cleanliness, good sanitary surroundings and a quiet mind, there is but little to be feared.

FOOD INVESTIGATIONS.

A most interesting series of experimental studies in analysis and dietary has been in progress for a number of years at the Storrs School Agricultural Experiment Station, at Storrs, Conn. Less public attention has been attracted by these experiments, than they really deserve, but a beginning has been fairly made in the work and pecuniary aid has been received from the Smithsonian Institute, and from various private individuals. A donation of $1,000 from Mr. F. B. Thurber is specially worthy of notice, and affords an excellent example worthy of imitation by other large dealers in food.

It is probable that wider attention will be bestowed in consequence of the admirable report for 1891, which has just been published by W. O. Atwater and Charles D. Woods. It is too voluminous and too statistical to attract the general reader, but for students of the science of nutrition (and students of that science are multiplying fast) it will be found almost invaluable. In the first place it is gratifying to observe that these two gentlemen recognize clearly the fact already pointed out by the ANALYST, that this can never be classed among the exact sciences, as certain tyros have indiscreetly assumed that it could be. Secondly, it is noticeable that with the true scientific spirit, Mr. Atwater disclaims knowledge beyond his specialty. He speaks as an expert in his own branch and offers his contribution to the general science without assuming to make deductions outside of his province. Thus, speaking of the replacing by each other of the interstitial fat and water of muscular and other tissues, he says: "We have not made the histological studies necessary for a full explanation of the matter, nor do we, as chemists, assume to discuss it from the physiological standpoint." This same spirit breathes through the report, excepting perhaps, when the study of dietaries is made the foundation of a certain amount of theorizing in political economy. This theorizing is interesting and is sufficiently plausible to carry some weight, but it appears somewhat out of place in a report which claims no authority outside of the field of chemistry.

It is further to be noted, as bearing upon the question of exactness in the science of nutrition, that individual differentiation is a large factor in the problem chemical, as well as the problem physiological. In other words, not only are the food requirements of one person widely different from those of another under similar circumstances ("No one expects any given man to adjust his diet exactly to either of these standards," says Mr. Atwater), but it is admitted and shown that different specimens of the same kind of food, as for example beef, oysters, lettuce or oatmeal, differ widely in chemical constitution. Moreover, the difficulty of separating the edible portions of food of many kinds from the refuse or waste is so great as to make the task impracticable, and no laboratory results could possibly be attained which would accurately resemble the actual household results of the same separation.

All this goes to show that the science of nutrition must ever remain one of general laws only. This by no means detracts from its importance, but it is well to be precise in treating of scientific matters. We know that protein, fat and carbohydrates are the essential constituents of the food that is requisite in maintaining health in the human body. We know that nearly every article of food used by man contains these three constituents in some proportion. How much of any one article or how much of all together any one man needs can only be stated as a matter of averages.

The primary consideration in the investigations reported by Mr. Atwater and Mr. Woods is unquestionably food economy. Something like one hundred specimens of meat and other animal food materials were analyzed by them in the effort to begin the investigation of American food products. A further series of analyses was made after the first had demonstrated that American meats contain much more fat than is needed for the proper nutrition of the consumer, and more than the demands of the home and foreign markets seem to warrant. In other words the investigation proved at the very outset, according to the judgment of those who were making it, that there is a serious economic error in the American methods of meat production. The second series confirmed this judgment, and seemed to prove that there is a distinct and serious waste in the overfeeding of the animals raised for food. And finally a third series of analyses was made as a part of a study of dietaries carried out in connection with the United States Department of Labor.

Almost at the beginning of the work it was realized that it was most desirable to study the chemical constitution of the flesh of fish and other animals and to determine accurately the measure of their digestibility. The problem is easy to state though as explained it is a practical impossibility to solve it with anything like mathematical accuracy. It was first to learn the component parts of different foods, in order to determine which kinds are richest in this, that or the other of the valuable elements, and in what proportions these elements are blended, as well as to know what proportion of waste or refuse exists in the various articles of food in common use. Secondly, it was desired to know, by actual weight, as exactly as possible, how much of each one of the valuable food elements go to make up the daily rations of men, women and children of various constitutions and conditions in life.

Referring to the first branch of the question, Mr. Atwater says that previous to the beginning of the work at the Storrs school, it was the practice among statisticians and economists, and not infrequently among physiologists and chemists as well, in estimating the nutritive values of food materials, to assume certain figures for the average composition of materials of different classes, as beef, mutton, fish, milk, flour and so on. This he calls a rough, statistical method, and yet his own work (though of course all precise data that can be added to the store of information on which averages are made) goes to show that no other way of figuring is possible. When two steers, for example, of the same breed, raised at the same time and place, in the same way, can be shown to vary in the proportion of food elements which they yield, it is manifestly impossible to do anything else but take "certain figures for the average composition" of beef.

Yet these analyses are of great value in fixing these averages. In Europe and especially in Germany investigations of this kind have been conducted for a long time past in the laboratories of universities, experimental stations and other institutions of research, and valuable data were accumulated long before anything like a similar work was undertaken in this country.

Yet, "to base the statistics of chemical composition of American food products upon European analyses," says Mr. Atwater, "would hardly be appropriate even if it were certain that the products there and here were nearly alike in composition. But the available knowledge regarding our own products sufficed to scarcely more than show that they differ considerably from the European ones, and that among themselves they are extremely variable." The last clause is the one which clinches the point on which we are insisting.

Among the interesting facts to be gleaned from the report of these analyses is one that will surprise the general reader. In speaking of the investigations of the constitution of the muscular tissue of fish as compared with that of animals, Mr. Atwater says that while the experiments are not completed they have progressed far enough to bring out very marked similarities and scarcely any very important differences between the flesh of the fish and the other flesh (beef) examined.

Another outcome of the late experimental inquiry in physiological chemistry is to explain more clearly than had before been done, the use of food as fuel in supplying the body with heat to keep it warm, and muscular strength for its work. It appears that the potential energy of the nutritive compounds, albumen, fat, starch, etc., or in other words their heats of combustion, as determined by the calorimeter may with proper corrections be taken as a measure of their food values.

The number of analyses of materials used for the food of man in the United States is not yet sufficient, Mr. Atwater acknowledges, for compiling satisfactory tables of average composition. Thousands, not hundreds, of analyses are needed for these. Tentative tables can be used, however, and these are given in the report, the remark being appended that they are subject to revision as new material accumulates.

One of these tables summarizes forty-seven analyses of beef, calculated on water-free substance. Protein is calculated by multiplying the percentage of nitrogen by 6.25, and albuminoids etc., by difference. In a majority of cases these two are not far apart. In general, the leaner the meat the greater the difference. The sums of the fat, protein and ash show these differences tolerably clearly. In only two cases, when the fat is less than 40 per cent of the water-free substance, does this sum fall below 100. In the muscular tissue from which all visible fat particles were removed before analysis, the footings of protein, fat and ash percentages in several instances are more than 102. This seems to indicate, assuming the correctness of the determinations of fat and ash, that the nitrogen factor was a little too large for the protein of the muscular tissues of the animals whosh flesh was here analyzed

It is noticeable according to these tables, that in general the percentages of water decrease as the percentages of fat increase, or in other words the higher the percentages of fat the higher the percentages of water free substances. That this should be the case when the quantities of fat are large is considered perfectly natural. Fatty tissue has extremely little water, while muscular tissue, freed from visible fat, is about three-fourths water. Hence, in the meat, or in an organ which is made up of both muscular (lean) and fatty tissues, the percentage of water will naturally be larger as the former, and smaller as the latter preponderates. But this is not the whole of the matter. When the muscular tissue is freed from visible fat, there are great differences in the percentages of fat remaining. The inference seems to be that interstitial fat and water of muscular and other tissue to a certain extent replace each other.

A similar relation is observed between the nitrogenous material and the water of muscular tissue. Thus the muscular tissue of fat salmon was found to contain not only much more fat, but also considerably more nitrogenous matter than that of spent salmon. It appears that during the period in which the spawn is being elaborated, when, as it is claimed by competent authorities, the animal (fish) takes no food, both fat and albuminoids are consumed, and their place in the tissue is in part filled with water. The mutual replacement of water and fat occurs in other tissues as well as in muscle. In bone, for instance, it is decidedly noteworthy. The fact that so much fat in invisible particles can take the place of water in flesh, makes the differences in the composition and nutritive values of lean meat much greater than has been commonly supposed. The excessive fatness of American meats is thus shown to be a much worse feature than it at first appears to be, for it works a decided disadvantage to the producer who sends to market more fat than he is paid for, and it is equally bad for the consumer who uses more than he needs, and often more than is good for his health.

This is by no means a recapitulation—it is rather an indication merely, of the interest attaching to the thirty-odd pages of tables of analyses, which accompany the report. It is evident that a firm ground-work of true scientific value is now provided for students of the science of nutrition, and all intelligent persons will be interested to know that the work is going on. Of the balance of the report treating on dietetics we will speak in our next issue.

MEDICAL.

MICROBICIDAL POWER OF ANTISEPTICS.

The readers all know what is meant by a microbe and by an antiseptic. The microbes are germs, and antiseptics, such as carbolic, salicylic, boric and thymic acids and corrosive sublimate, are the agents with which we destroy these germs. Their antiseptic power varies with the substance employed, one which has a marked effect on a given microbe will have no action at all on another, which may only be modified by a different antiseptic agent, which, therefore, should be chosen according to the effect desired and according to its microbicidal power. This choice is not an easy one, and it is fortunate that different observers should have demonstrated that by combining several antiseptic substances a new product can be obtained, the microbicidal power of which will be far superior to the total of the powers of the various substances employed.

Acting on this principle, Messrs. Christmas and Respant have endeavored to obtain a formula for an antiseptic solution that shall be both powerful enough to destroy the microbes, and at the same time not so strong as to damage organism.

The best results were obtained with the following formula:

Carbolic acid	10 grammes
Salicylic acid	1 gramme
Essence of mint	10 drops

A one-half per cent solution in water of this mixture destroys the microbes of diphtheria; those of typhoid fever cannot stand its action for more than half a minute. The anthrax bacillus is destroyed by a one-fifth per cent solution. This represents an antiseptic power five times greater than that of carbolic acid alone. Tuberculous sputa treated by a 1 per cent solution can be sterilized in a quarter of an hour.

Formulæ of this kind will render great practical service in the prophylaxis and treatment of microbian complaints.

DISINFECTANT MIXTURES.

The *Sud-Deutsche Apotheker Zeitung*, gives the following:

1.	Crude carbolic acid	50 parts.
	Iron sulphate	25 parts.
	Slaked lime	150 parts.
	Calcium sulphate	750 parts.

English red sufficent to color. Powder and mix.

2.	Oil of tar	50 parts.
	Chalk	70 parts.
	Dried bran	80 parts.

Mix.

3.	Calcium sulphate	15 parts.
	Quicklime in powder	10 parts.
	Magnesia	10 parts.
	Crude carbolic acid	15 parts.
	Infusorial earth	7 parts.

Mix.

4.	Quicklime	70 parts.
	Charcoal	10 parts.
	Crude carbolic acid	6 parts.
	Zinc chloride	10 parts.
	Hypochlorated zinc oxide	5 parts.
	Infusorial earth.	5 parts.

Powder and mix.

5.	Slaked lime	100 parts.
	Coal tar	25 parts.

Infusorial earth sufficient to make a dry powder.

Mix.

6.	Sulphate of iron	68 parts
	Plaster of paris	6 parts.
	Calcium sulphate	5 parts.
	Infusorial earth	5 parts.

Powder and mix.

7.	Iron sulphate	3 parts.
	Slaked lime	3 parts.
	Turf mold	4 parts.

Mix. This is especially recommended for privy vaults.

8	Iron sulphate	500 parts.
	Plaster of paris,	475 parts.
	Crude carbolic acid.	25 parts.

Mix.

9.	Crude carbolic acid	2 parts.
	Slaked lime	3 parts.
	Turf mold	5 parts.

Mix. This is the so-called Dietrich disinfecting powder.

Care of the Eyes During Early Life.—Dr. L. Webster Fox (*Med. and Surg. Reporter*) formulates ten rules on the preservation of the vision: (1) Do not allow light to fall upon the face of a sleeping infant. (2) Do not allow babies to gaze at a bright light. (3) Do not send children to school before the age of ten. (4) Do not allow children to keep their eyes too long on a near object. (5) Do not allow them to study much by artificial light. (6) Do not allow them to use books with small type. (7) Do not allow them to read in a railway carriage. (8) Do not allow boys to smoke tobacco, especially cigarettes. (9) Do not necessarily ascribe headaches to indigestion; the eyes may be the exciting cause. (10) Do not allow the itinerant spectacle vender to prescribe glasses.

For the Complexion.—Ten to fifteen grains of magnesia sulph. taken in a tumblerful of water every morning before breakfast will cause the most unsightly complexion to become clear in a short time. Generally, a month suffices for a complete cure, the skin having all the softness and clearness of a baby's. The application of a solution of magnesia sulph. externally, is said to be very beneficial also—say, one grain to the ounce of rosewater, applied every night and morning by means of a bit of soft sponge or linen cloth. It is said that blush-of-roses, a South Bend nostrum, is only a weak solution of magnesia sulph. in water.

Hog Cholera.—H. J. Detmers, of the Ohio University, Columbus, Ohio, has discovered the bacillus that causes the cholera in hogs, and by a continued series of experiments has demonstrated the possibility of preventing the disease by inoculation. If the professor's experiments stand the test of proof, even in a majority of cases, it means a saving of many thousands of dollars to the pork producers of the country.

Poison of Human Exhalation.—Prof. Brown-Sequard has said that in condensing the watery vapor coming from the human lungs, he obtained a poisonous liquid capable of producing almost immediate death. This poison is an organic alkali, and not a microbe, or series of microbes.

Black Eye.—There is nothing to compare with a tincture or a strong infusion of capsicum annuum, mixed with an equal bulk of mucilage or gum arabic, and with the addition of a few drops of glycerine. This should be painted all over the bruised surface with a camel's hair pencil, and allowed to dry on, a second or third coating being applied as soon as the first is dry. If done as soon as the injury is inflicted, the treatment will invariably prevent the blackening of the bruised tissue. The same remedy has no equal in rheumatic, sore or stiff neck.—*Medical Times.*

Killing Time.—Smithkins—Hello, Doc! What are you doing?

The Doctor—Trying to kill time.

Smithkins—Why don't you prescribe for him? —*Puck.*

Laxative Lemonade.—The *Pharmaceutical Record* says that a preparation known as laxative lemonade is prepared in Germany by dissolving thirty to fifty grams tartrate of soda in 500 grams of hot water, allowing the solution to cool, and adding to it fifty to 100 grams of flavored simple syrup. This mixture is then transferred to strong glass bottles and charged with the weight of several atmospheres of carbonic acid gas. This is said to furnish a cheap and effective substitute for citrate of magnesia.

SUNBURN AND FRECKLES.—Dr. Shoemaker, in his book, "Heredity, Health, and Personal Beauty," says:—"Sunburn and freckles, if not of long standing, are quite amenable to treatment with tincture of benzoin and water, one teaspoonful of the tincture to a cupful of cold water. Carefully avoid getting the mixture into the eyes; bathe the parts for ten minutes, morning and night. Let the face become almost dry after bathing it, before wiping it off with a piece of soft old linen." He also gives the following for the removal of freckles:—

Oxide of zinc................	3 drachms
Subiodide of bismuth........	½ "
Dextrin.	2½ "
Glycerin.....................	3 "

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NATURALLY.—"Doctor, when do you think a man weighs most?" asked a patient who was undergoing a course of dietary treatment.

"When he steps on my corns," answered the doctor.

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A MERCENARY DENTIST.—"Which is the aching tooth?" inquired the dentist.

"This one," said the sufferer, as he pointed out the offender.

"Ah, yes, I see. Bicuspid."

"What?"

"Bicuspid."

"I'll buy anything, doctor, if you'll only get the tooth out; though it looks a little mean to take advantage of a man in this fix. What are your cuspids worth?"—*So. Dental Journal.*

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WHOOPING.—"How did you amuse yourself while you had the whooping-cough?" asked Uncle Jack.

"We played Indian," answered Bobby, "and we could give splendid war-whoops."

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AN UNUSUAL RESULT.—Guide (pointing to a mummy)—This was Rene, the priest, the wisest man of his time. He lived to a great age.

Tourist—Was his last illness fatal?

Guide—Yes, very fatal.

Tourist—What a wonderful thing that we see him now permanently cured.—*Pharmaceut. Era.*

HYGIENIC.

THE PULSE.

Everyone should know something about the pulse, as it is a very important index to the condition of the body in various diseases, and is a valuable aid to the determining of a patient's condition in nearly all diseases. In order to know the condition of the pulse in disease, it is necessary for us to examine it in health.

The Pulse in Health.—The pulse is about one hundred and twenty to one hundred and forty at birth. It gradually diminishes until it reaches about ninety at the age of seven or eight years. In adult life it is sixty-five to seventy-five, and in old age not much over sixty. Females have a somewhat more frequent pulse than males, the difference being five or six beats a minute A difference of five to ten beats is made by changing from a lying position to sitting, and from sitting to standing. By violent running the pulse may be increased to one hundred and forty or more.

The pulse is felt by placing the first two fingers upon the artery at the outside of the arm, with the second finger toward the heart. The force of the heart is determined by pressing with the second finger, and noticing how much force is required to compress the artery so that the pulse cannot be felt by the first finger. The pulse may also be felt at the temple, the neck, and in various other situations.

The Pulse in Disease.—The following are the principal variations of the pulse:

Frequent Pulse.—A pulse diminished in force, increased in frequency. A characteristic of debility.

Febrile Pulse.—In fever, the rate of pulsation, and usually the force, is increased.

Feeble Pulse.—A pulse that is readily extinguished by pressure with the finger. Indicative of great debility or exhaustion.

Thready Pulse.—A pulse which gives the sensation beneath the finger of a vibrating thread. Present in cases of very great debility.

Slow Pulse.—An unnaturally slow pulse occurs in cases of brain poisoning or apoplexy; it is present in compression of the brain from fracture, and in unconsciousness from opium or liquor.

Quick Pulse.—An abrupt, jerking pulse, either frequent or moderate in rate of pulsation.

Hard Pulse.—A pulse which seems to indent the finger. This sympton indicates great excitement of the circulation.

Intermittent Pulse.—A pulse which now and then loses a beat. Indicative of either functional or organic disease of the heart.

Irregular Pulse.—A pulse which is irregular in frequency and force. The irregularity may be only slight, or may be extreme. Is generally found in heart disease. Is very often the result of the use of tobacco and of strong tea and coffee.

Irritable Pulse.—A pulse which is both frequent and hard.

Wiry Pulse.—A pulse which gives the impression of a vibrating wire.

HOUSEHOLD.

HIGH MEATS.

A HINT FOR HOUSEKEEPERS.

There are many people who prefer "gamey" or "high" meats, or, in other words, meats that are a little over the line of decomposition. Nor are they ready to accept the fact, long ago established, that such meats are not only unfit food, but are in a high degree harmful. When decomposition occurs, poisons are developed. Healthy adults are able to resist these poisons to a trifling extent. Just where the resistance lies no one knows, but it is generally accepted that it is in the liver. This theory is supported by the fact that those who are inclined to be bilious, and have sluggish and otherwise deranged livers, are always upset, if not made really ill, by meats or fish that have become in the slightest degree tainted. Children have but little, if any, power to resist food poisons. Not long ago there came from Germany a report that twenty persons had been poisoned by venison that had been too long kept. Among them were three children. They died, but the others "were saved with much difficulty." Housekeepers generally believe that meats that have become slightly tainted can be "freshened up" and made harmless by boiling in soda and water. This assumption is defective. The bad smell and taste can often be removed by this means—that is, if the meat is not too old; and if the boiling is kept up for several hours so that the inside of the meat is as thoroughly treated to the soda and high heat as the outside, when very likely all the putrid poisons would be destroyed. But an ordinary cooking would not render such meat perfectly safe. This is one of the simplest means of "restoring" meats. Salicylic acid and boracic acid are used by some manufacturers of bologna sausages and like foods, and by some canners of meat. But even the soda is somewhat detrimental, while the other preservatives are decidedly so.

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THE HOME DOCTOR.

If smoke is suffocating you, fall on the floor and crawl on your hands and knees.

In cases of poisonous bite, suck the wound instantly, unless the mouth is sore.

For the sore mouths of infants dissolve one ounce of powdered borax in four ounces of glycerine.

An insect in the ear may be drowned out with tepid water, or killed by a few drops of sweet oil.

If scalded, plunge the part in water. This relieves pain instantly, and gives time for thought and composure.

Glycerine and lemon juice taken at night does much to relieve distressing cough. It is also useful in dry throats. Full-strength glycerine will tend to increase the dryness of the mouth and throat by its power of absorbing moisture, and for this reason it should be diluted before being used.

In cases of insensibility in which there is loud snoring, the person is seized with apoplexy. Raise the head, remove pressure from the neck. If the face is pale and the breathing very low, it is a case of fainting. Place the body perfectly level, and lower the head. The patient will promptly revive. Nothing else is necessary.—*Sel.*

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UNFERMENTED BEERS.

The Fring's "Beverage" patent, it is claimed, covers all non-alcoholic beverages which can be called beer, i. e., contain at least some malt extract, a bitter principle and carbonic gas, and no matter how they are made and what other ingredients they may contain, an unlimited license under this patent, it is claimed, protects the holder against any and all real non-alcoholic beers. With an exclusive license the holder will be able to prevent all competition.

The Fring's "Process" patent claims to cover all beers which contain the above ingredients or any other besides, in which fermentation is prevented by any of the means or methods named which cover all that are known to science to the present day.

Witteman's own method of producing an improved unfermented beer, and for which patent applications are now pending, after careful scientific investigation and practical tests had been made, has been acknowledged by many experts as the only method to produce a real imitation of lager beer of the same flavor and appearance, and at the same time, also, of even better keeping quality. By this method can the beer extract (worts) be preserved from after-fermentation, cloudiness, and conversion into alcohol. Other methods allowed more or less chance for after-fermentation, or required the use of chemical anti-ferments, which spoil the flavor and even render it obnoxious—the reverse of an ideal beer.

Their improved method has not only made possible the production of a real pure lager as well as ale and porter flavor in an unfermented beer, but by it the total cost is reduced to nearly one-half that of lager.

With a complete outfit, it can also be made in one-twentieth the time required to finish lager, namely, in from one to two days, and requires therefor only one-twentieth storage capacity, capital and refrigeration.—*American Carbonater.*

Rhubarb Marmalade.—Peel six oranges, take away the white rinds and pips, slice the pulp and peel into a preserving kettle, cut very small, add a quart of rhubarb (finely cut), and from one to one and one-half pounds of sugar. Boil down same as for other preserves. This is excellent.

Rhubarb Jam.—Peel and cut the rhubarb into nice-sized pieces, and to every quart give one pound of good, moist sugar; put the sugar over the rhubarb and leave it twenty-four hours, to draw out the juice. The sugar sinks but does not dissolve. Boil the sugar and juice together for twenty minutes. After it begins to boil put in the rhubarb and boil slowly twenty minutes longer. If only allowed to simmer gently it will not require to be stirred, and the pieces of rhubard will thus remain separate. This will keep good a year if kept in a cool dry storeroom.

Rhubarb and Apple Jelly.—Peel and cut up one good-sized bundle of rhubarb; peel, core, and quarter three pounds of apples, the thin rind and the juice of half a dozen lemons; put all together into the preserving kettle with one and one-half pints of soft water. Boil until reduced to a pulp, strain the juice through a jelly strainer, weigh, and allow one pound of loaf sugar to every pound of juice. Boil up the juice, add the sugar, boil, skim well, and when it jellies on the skimmer, pour into jars, and when cold tie or seal down. The pulp, stewed with white sugar, can be used for jam puddings, or is very nice put into a glass dish, covered thickly with sugar, then a layer of thinly-sliced sponge cake, and a nice custard poured over all.

Frozen Pudding.—Two quarts of cream, one pint of new milk, one and a half pints of granulated sugar, the whites of five eggs and yelks of two, three tablespoonsfuls of flour, six tablespoonsful of Maraschino wine, one cupful of fine raisins (measured after seeding), one-half cupful of blanched and minced almonds moistened with a teaspoonful of rose water, one-fourth cupful of finely-shredded citron. Scald the milk in a double boiler, and when it reaches the boiling point, stir in the sugar and flour which have been thoroughly mixed together. Cook till the raw taste imparted by the flour has disappeared, then remove and stir in gradually the beaten eggs, beating well. Cool, add wine and freeze like ice cream. When about half frozen, beat in the fruit and continue until solid. Pack in a brick, surrounded with ice and salt, until needed.

To Remove Kerosene Stains from Floors.—Mix 3 parts of dried and powdered clay with 1 part of carbonate of soda. Make into a soft paste with a little water, and spread over the stains. They will disappear in six or eight hours, after which the floor should be washed.

Lemon Cake.—Eight pounds flour, 3 lbs. sugar, 3 lbs. margarine, 2 lbs. drained lemon peel, 2½ oz. baking powder, 12 eggs, 1 qt. milk, saffron coloring, lemon flavoring.

Cream the margarine and sugar, adding the eggs gradually while beating. Stir in the milk, flavoring and sufficient saffron to make a golden yellow. Sift the baking powder with the flour and work it lightly in, and then add the peel (previously chopped fine). Fill the batch into deep edge tins and bake in a moderate oven.

Hyde Park Cakes.—Four pounds flour, 1½ lbs. sugar, 1 lb. margarine, 2½ oz. dried yeast, ½ oz. ground nutmeg, 1 qt. new milk.

This would produce fifty-six cakes.

Rub the margarine into the flour, mix in the sugar and nutmeg, and make a bay. Warm the milk, dissolve the yeast in it, turn it into the bay, and make up a soft dough. Mould well and let lay for an hour, then again mould. Now roll it out to a sheet half an inch thick and cut into 2 oz. squares. Place on well-buttered tins and bake in a warm oven. Wash over while hot with egg-wash.

Salvation Army Beer.—*Drinks* gives the following, which is said to be popular among the followers of General Booth: Allow an ounce of hops and a spoonful of ginger to two gallons of water. When boiled strain it, and put in a pint of molasses and a few sprigs of silver birch, and when cool add a teaspoonful of yeast. Pour into a light clean cask, let it ferment for a day or two and then bottle for use.

Diamond Paste.—The polishing material sold under the above name is said to be composed of coke, ground to an impalpable powder, made into a paste with fat, and perfumed with an ethereal oil. This is the composition, hitherto kept secret, which is used in the manufacture of razor strops.

ADULTERATION.

ADULTERATED LICORICE.

"The stick licorice imported from Europe is rarely pure. Most of it comes from Spain, where it is adulterated to an almost incredible degree. The chief adulterant is a common and cheap gum obtained from an acacia, which grows in great abundance in Morocco and along the west coast of Sahara, and is called Barbara gum. But this is not the only substance used—for starch, flour, and even sand are employed in such quantities that some of the cheap grades of licorice have only one-half their weight composed of the material they purport to claim."

The above appeared *verbatim* in the New York *Journal* of the 17th ult., but we disavow all responsibility for its accuracy. It will be observed by the thoughtful reader that no authority is vouchsafed for the allegations therein contained, and, as we have never heard that such ingredients as sand have been found in Spanish licorice, we give the paragraph circulation with some reserve. All we can is that, if the Spanish licorice imported into the United States is as bad as it is here represented, it should be vigorously boycotted by all our manufacturers and dealers. Sand in sugar is bad enough, but sand in stick licorice, whether of foreign or home make, is not to be tolerated.—*Confectioners' Journal.*

In turn we quote this from the *Confectioners' Journal* and can only add that the *Journal* first quoted is right. Anyone who has ever tasted the cheap stick licorice on the market has had the grit of sand in his mouth. The worst adulteration however in cheap licorice extract is lampblack and bad rye flour. Our American licorice, [illegible] by responsible houses, is in every way superior to the average imported article.

HENBANE FOR CELERY SEED.

An English contemporary publishes the following:

A striking example of the harm done by adulterated food was recently furnished in London After partaking of some soup, which was supposed to be flavored with celery seeds, a gentleman and his wife became dizzy and soon showed unmistakable signs of poisoning. The physican who was summoned treated them successfully and then took the bottle of celery seed, which had been purchased from a neighboring grocer, to a reputable firm of analysts, the result being that it was found not to be celery seed at all, but pure henbane. Two other bottles were then procured from the same grocer and analyzed, with the result that one turned out to be pure henbane and the other henbane and celery seed mixed.

This is certainly an example of the worst kind of adulteration, for the reason that henbane is a deadly poison. A large London firm of seedsmen and herbalists, we are told, procure it from France wholesale and make it up into bottles, which they sell to grocers, the price being about 50 per cent less than that of genuine celery seeds. If this be the case, the wonder is that more persons have not been poisoned. The chances are that many have been poisoned—though possibly not fatally—as, being used merely for flavoring purposes, the poison would, as a rule, act insidiously and slowly, and at no time, unless an unusually large amount was used, would its effect be strikingly apparent. Insidious poisons, however, do their work in the long run, and we certainly would not predict a long life for any one in London who indulges in soup flavored with this kind of celery seed. To what extent, if any, henbane is substituted for celery seed in this country we are not aware, but we are pretty certain that no American grocer would sell his customers an article which he knew to be either wholly or partly a deadly poison. Much of our food is adulterated, but as a rule the foreign ingredients are harmless. Now and then we hear that some one has been poisoned by eating canned salmon or French peas, but in such cases the harm has been done not by the goods themselves, but by the metallic cans. We have yet to hear of any manufacturer in America who makes a living by poisoning the public, and we are confident that we shall never be called upon to denounce an American for committing such a heinous crime. It is bad enough to adulterate food with harmless ingredients; it is the act of a Cæsar Borgia to sell deadly poisons for food.

ADULTERATION OF WINES.

A measure has been submitted by the German government to the Reichstag for the regulation of wine-making. On hygienic grounds it is proposed to prohibit the employment, in treating wines, of barium, boric acid, salicylic acid, the salts of strontium, etc., and the maximum quantity of sulphuric acid to be allowed is to be determined. On the other hand, the measure recognizes the legality of mixing, and, within certain limits, the addition of water and sugar to the sellers make known to the buyers the composition of the products so made.

DIFFEREN[illegible] PRESERVING PREPARATIONS.

[illegible] communicates to the *Pharmaceutische Zeitung* the following results of analyses of various proprietary preserving preparations now on sale in Germany and Austria:

Dressel's Meat Preservekristall, E. Dressel, Berlin: Sodium sulphite, crystallized, 90 parts; crystallized sodium sulphate, 10 parts.

Roseline, of C. H. Rose, Hamburg, a preparation for giving meat a natural color: Red carmine lake, 25 parts; crystallized boric acid, 20 parts; water sufficient to partly dissolve.

Phlodaritt, from the Magdeburg Conservesalzfabrik of Adolph Dubecke: Sodium sulphate, 75 parts; sodium bisulphite, 25 parts. The directions are to use 10 gm. of this salt to each kilogram of meat (i. e., 1 part to every 100 of weight of meat to be preserved).

Carnat, from L. Ziffer, Berlin: Sodium sulphate 20 parts; sodium sulphite, 40 parts; sodium chloride, 40 parts; sodium carbonate, 2 parts; sugar, 5 parts. The directions are 1 gm. to every kilogram (or 1 part to 1,000 of meat).

Monopol, from L. Ziffer, Berlin: Potassium nitrate, 43 parts; potassium carbonate, 15 parts; potassium chloride, 17 parts; sodium chloride, 1 part, sugar, 20 parts.

Erhaltungspulver (preserving powder), from L. Ziffer, Berlin: Cooking salt (sodium chloride), 28 parts; boric acid, 70 parts.

Best Australian Meat Preserver, from Ziffer, Berlin: Sodium chloride, 35 parts; sodium sulphate, 50 parts; sodium bisulphite, 15 parts.

Preservaline, from Ziffer, Berlin: Cooking salt, 207 parts; sodium sulphite and bisulphite, 185 parts; sodium sulphate, 15 parts; water sufficient to make 1,000 parts. The solution is given a yellow color by the addition of a minute portion of iron chloride A small amount of benzoin is added to give an aromatic odor.

COLORING MILK.

A word in season on the general subject of "faking" is spoken by Professor F. J. Allen of Mason's College, who writes in the *British Medical Journal*: "Perhaps the most constantly practiced of all forms of adulteration, at the same time the most ignored by the public, is of adding red pigment to milk to give it a creamy color. So frequent is the adulteration that I have found it a matter of difficulty to obtain uncolored milk in towns. The pigment mostly used is annatto; and although the coloring matter may not be poisonous, yet its use must be regarded as highly reprehensible, because it enables milk of poor quality to pass as rich. The public must take some of the blame themselves for their want of discrimnation between good and bad milk—for their readiness to accept depth of color alone as evidence of the richness of milk, whereas it should be known that some of the richest samples are very white. Some years ago I was told by a London (suburban) milk dealer that he had tried repeatedly to get his customers to accept milk in its natural uncolored state, but they invariably sent it back with the remark that it was skim milk, quite sky-blue. It was then only necessary to take the specimen behind the scenes, add the usual coloring, and return it to the customer, who would accept it with satisfaction, and would remark, 'You can see the cream in this.'"

CORRESPONDENCE.

HONEY AND ITS ADULTERATIONS.

CINCINNATI, Au[illegible]

Editor American Analyst:—

DEAR SIR: When reading the letter of Prof. Wiley in No. 21 of your valuable paper, I was reminded of that celebrated Frenchman, Talleyrand, who said, "Language is made to conceal our thoughts." The uninitiated who read the professor's letter can't help but consider me a mean man and a fool besides. He quotes such parts of my letter in your issue of Aug. 1, page 240, which suit his purpose and he leaves out those which don't. Prof. Wiley says: "He [Muth] even admits that he sells his labels with his jars so that anybody can use them for any kind of honey he sees fit," etc. But he does *not* say that those labels we sell to other parties are blank labels, *without* our name, as that letter clearly shows. The professor endeavors to make the readers of the ANALYST believe that Chas. F. Muth & Son sell their own firm-labels to Tom, Dick and Harry for putting up whatever they please. What sensible business man would do so or even believe such foolish story? Prof. Wiley says in No. 19 of your issue, page 228: "I doubt very much whether Mr. Muth is justified in selling honey which he purchases in California as the product of his own apiary." We never did so, and I have denied his statement. What does he now mean with his cloudy statement on page 253, No. 21 of your issue?

As to selling honey under our label, I refer the reader to my letter in No. 20, page 240.

Prof. Wiley endeavors to make capital out of two of my assertions, that the honey we produce amounts to comparatively nothing and that we produce 8,000 to 10,000 lbs. in a good season. The professor don't seem to be posted on several subjects, but he may comprehend the truth of my assertions when I tell him that we sold 43,000 lbs. of honey to three of our customers during the month of February last. Three other customers receive weekly shipments which amount to 10,000 to 15,000 lbs a month for each one. The above are our largest customers excepting one who receives a carload—20,000 to 24,000 lbs.—every fifth or sixth week. If the professor will pay us a visit, we will show him a stock of 100,000 lbs. of honey at almost any time of the year, and much more sometimes.

I will mention here for the professor's benefit a few single shipments received by us during the last few years, aside of all smaller arrivals: One shipment from Florida of 185 barrels, nearly 100,000 lbs.; one from Cuba, 87,000 lbs.; one from Louisiana of 150 barrels, nearly 90,000 lbs., and one from Mississipi of about 50,000 lbs. Each one of the above shipments, excepting that from Florida, was the product of one beekeeper and of one season. Will Prof. Wiley not agree with me that our own crop amounts to comparatively nothing, even if it is 10,000 lbs.? The professor is so persistent in his endeavors to show that misrepresentation is perpetrated by me, and not by him, that I feel somewhat as he does, that further controversy between us is undesirable.

I am, very respectfully yours,
CHAS. F. MUTH.

REMARKS BY THE EDITOR.

We regret very much that this controversy could not have been amicably settled. Professor Wiley admits that he did Mr. Muth an injustice in alleging that Mr. Muth had admitted that he sold labels bearing the name of Charles F. Muth & Son when in fact Mr. Muth expressly stated that the labels he sold, though exactly like his labels, bore no name and were so left that the dealer might have his name inserted. This admission was not satisfactory to Mr. Muth. Both sides having now had ample opportunity to state their [illegible] nothing is to be gained by any further war of words; the controversy in this journal is therefore closed.

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TO ARREST BOILS.—Take of camphor, 1 part; chloroform, 2 parts; applied with the tip of the finger hourly for a day, is reported to be capable of aborting boils—if used before suppuration has begun.

MISCELLANEOUS.

PRACTICAL EDUCATION.

THREE EDUCATIONAL IDEAS, ACADEMIC, PROFESSIONAL AND MANUAL TRAINING.

The question of educational utility has assumed three distinct phases in this country, says *Points*. Each of them is capable of being stated in a single proposition, and each has its special advocates and adherents. Philosophically speaking, each represents a school of thought, and, in the application of methods, three separate systems of education have been developed. Quite naturally, each set of principles and methods is looked upon as the cure-all of every intellectual evil, and one would think in listening to certain public instructors that no sort of education amounts to anything which does not recognize the special formula which they individually prescribe. The purpose of this article is to enumerate these educational systems, to analyze them briefly and to point out the excellencies as well as the limitations and defects of each. The first is the time-honored notion of academic education—a system which looks to the education of the man as a thinking and intellectual being. What is undertaken is mind-training pure and simple. It is assumed that a man as a member of society is best fitted to take up the active responsibilities of life when he is informed with reference to the fundmental principles of human knowledge. The methods employed are mostly study and instruction in the arts of reading and writing, the mastery of mathematical and logical processes, the acquisition of language and the pursuit of knowledge by reading and investigation. Science, history and philosphy are the fields usually traversed, and intelligence is sought as an end in itself. The advocates of this theory maintain that educated brains rule the world, that the mind should be cultivated without reference to the specific vocation a man is to follow. Breadth of intellectual vision, the development of the logical faculty, and familiarity with what is and has been, are thought to be the best possible provisions for the evolution of a far-seeing, high-minded and noble-hearted manhood. But a legion of carping critics has arisen to condemn this view. The business man thinks he has discovered that the college-bred boy is not practical. So great an authority as Andrew Carnegie lately said that the college graduate has not the slightest chance of entering business at twenty against the boy who swept the office at fourteen. The awful disclosure has been made that the boy who has had thousands of dollars spent on his education cannot keep books, and, sometimes, cannot write a good business letter and punctuate it properly. Hence it is assumed that collegiate training is useless, and that the system of education which has prevailed since the revival of learning must be thrown aside for something more practical. The excellencies of academic training lie in its universal application to all ends of a busy and useful life. It has in view the adequate development of character and manhood rather than the evolution of a counting house or banking machine. Its limitations are along the line of specific and narrow achievement. The man who sweeps the intellectual horizon with a Lick Observatory telescope cannot also putter with a single lense microscope over a column of ledger figures in a counting room. He can learn to handle the smaller instrument in a short time, but he cannot always do so off-hand. In the broadest and best sense of the word academic education is the most practical kind of training. Certainly the progress of civilization has abundantly proved that proposition.

The second variety of education to which we shall refer may properly be termed business education. In its widest application it includes law schools, divinity schools, medical schools, institutes of technology and commercial schools. The purpose of this kind of training is to produce lawyers, preachers, doctors and business men, and to instruct them in the vocations which they are to pursue. As an educational system, this form of special instruction is productive of excellent results in the particular field which it covers. Professional men and business men could not be so efficient in their callings were it not for the mighty impulse they received in the professional school. No one can successfully controvert the proposition that technical institutions and business colleges are exceedingly useful. Thousands of men in active life would gladly bear testimony to the utility of such education. This species of pedagogical effort, however, has its limitations which are not few in number or small in extent. To begin with, such education is only incidentally a means of culture A man thoroughly trained in a law or commercial school learns how to perform certain things which have a most practical bearing upon earning a livelihood. Far be it from any intelligent man to undervalue the utility of that sort of knowledge and skill. But the great mistake comes in when an effort is made to make people believe that this is the only education they need. It is a misnomer to call this technical acquisition by the name of education at all. It is not culture but a vocation which is developed in such a school. Educational specialism has its use, but it turns out a machine rather than a man in the end. The truth of this view is seen when it is taken into account that every effort to make the pursuit of special studies answer the ends of mind training has resulted in lamentable failure. What did we hear on every side? Why, that the graduate of the business college cannot keep books, that the law graduate cannot conduct a case, or that the civil engineer, by grace of a college diploma, cannot construct a railroad. In short, practical men are finding as much fault with the technical school as they are with the academy and university. It is quite evident that educational specialism is not an absolute "cure-all" for shortcomings of academic training.

There remains a brief reference to the third system of education known as manual or industrial training. The idea which lies behind these "trade schools" is that the mass of mankind is face to face with the struggle for existence. They are called upon to earn a living at a very early period in life, and little time is given for what has been termed the luxury of a liberal education. Such preparation as can be made for the active duties of life must be of a very rudimentary character, and the claim is advanced that the education of the hand in some useful occupation such as carpentry, machinery, painting, or bricklaying is the kind of training most needed in this intensely practical age. We will not seek to quarrel with the hard necessity which has given birth to this educational idea. Like others already mentioned manual training has its utility. It certainly is better than no education at all. It serves to put countless boys and girls on a higher plane of independence than they could otherwise attain. Industrial schools certainly should be encouraged, and every appliance should be added to them which can make their work thorough and efficient. But the limitations surrounding this kind of education are very numerous. The system is narrowed down to the smallest limits, and pupils are instructed in the principles of a single industrial trade, while almost nothing is done to enlarge and feed the mind. Manual training is divested almost entirely of what we call culture, and the individual is benefited by such training only in the least degree. It is the poorest sort of a substitute for academic education, and it simply serves as a soothing lotion upon a deep seated and chronic social ulcer. It will be seen from the foregoing discussion that the three phases of education considered are considerably divergent, yet have some things in common. There is in fact a *terra media* where the principles of all three apply. They are antagonistic only as their adherents and representatives force that antagonism. When men seek to spread specialism over the entire educational field, right there confusion and folly begin. If instructors would cheerfully recognize the natural limitations of their several departments and not seek to deceive themselves or a credulous public by administering a specific for a general line of treatment, much trouble would be saved in our educational work. It is as clear as daylight that academic education coming before technical or industrial training would afford a good foundation for either. The true solution of the educational problem lies in the acquisition of as much general instruction as possible to be supplemented by that of a special or industrial character. The fact remains that intelligence is the great desideratum in the community. It is needed in the manual worker, in the manager or director and in the professional man, and intelligence can be acquired only by resort to good old-fashioned academic education, either in school or out of it along the road traveled by what are called self-made men.—*O. Judd Farmer.*

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INSECT NUISANCES.

HOW TO GET RID OF HOUSEHOLD PESTS.

In his fourth lecture before the Lowell Institute last week, Professor Riley discussed the ever timely subject of household pests. The treatment of the subject was practical, and the remedies given for each particular pest are worth noting by the careful housewife. For certain of the commoner pests, such as the bed-bug, the carpet-beetle, the clothes-moth, benzine, applied in a fine spray by means of a hand atomizer, was stated to be the best remedy, as in most cases it destroys the insect in all stages, including the egg. In using benzine, however, care must be taken that no fire or artificial light is in the room at the same time, the vapor of benzine being highly explosive. For cockroaches, bristle-tails, or fish-moths and fleas, the lecturer recommended a liberal use of pyrethrum powder, in the form of either Persian or Dalmatian powder or Buhach. Fleas, he said, are generally introduced into houses by dogs or cats, and the presence of bed-bugs is not always a sign of uncleanliness, as they have been found under the bark of trees in the woods, and in country houses may sometimes be traced to this source. Keeping premises clean and dry was said to be in general a good preventive of insect pests. The common house-fly, with its complicated mouth and its stereoscopic eyes with 4,000 facets, was next discussed, and the lecturer then passed to an interesting account of the mosquito. The eggs of this insect are laid in the water and the larva, when hatched, passes through several moults in the same element, the perfect mosquito finally breaking out from the pupal skin and flying away on her blood-thirsty mission. The female mosquito is the form which stings, the male seldom leaving the swamps where he dwells, and contenting himself with vegetable juices. In dealing with the mosquito as a household pest, good pyrethrum powder is probably the best preventive of its annoyances. Moistened and made into little cones, allowed to dry and then burned in a closed chamber, this powder will either stupefy or kill, and is one of the best means of freeing chambers from mosquitoes. Touching upon a theory advanced some years ago—that mosquitoes by their stings inoculate the body with malarial poison—the lecturer stated that in his judgment there was no connection between the two, though the same conditions which cause malaria are apt also to breed mosquitoes. In the case of elephantiasis, however, a disease prevalent in tropical countries, and due to a minute organism known as filaria, it has been well established that the filaria in its life development must needs pass through the mosquito as an intermediary host.—*Boston Advertiser.*

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THE COLDNESS OF SPACE.

TO BE READ WITH THE MERCURY MARKING 95 IN THE SHADE.

We rarely realize how easily the earth parts with its heat, and how cold space is through which the earth sweeps in its orbit. Nor do we commonly appreciate how relentlessly space sucks away the heat which the earth has garnered from the sunbeams, out into its illimitable depths. 'Way out in space is a cold so intense that we fairly fail to grasp its meaning. Perhaps 300 deg. or 400 deg. below the freezing point of water, some philosophers think, are the dark recesses beyond our atmosphere. And night and day, summer and winter, this insatiate space is robbing us of our heat and fighting with demoniac power to reduce our globe to its own bitter chill. So after all our summer and winter temperatures are only maintained by the residue of the sun's heat which we have been able to store up and keep hold of in spite of the pitiless demands of space. Our margin sometimes gets so reduced on nights in winter that we can readily believe the astronomers and physicians when they tell us that a reduction of the sun's heat by 7 per cent and a slight increase in the number of winter days would suffice to bring again to our hemisphere a new age of ice, with its inevitable desolation The balance is really a nice one between the heat we daily gather from the sun and the share of it which we lose in space.—*Exchange.*

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SECRET SOCIETY SECRETS.—Wife, 11.30 p. m.—What's that horrid odor? Smells like alcohol.

Husband.—Yes, my dear; we use alcohol at the lodge for initiations. Take some alcohol, light it, put salt in the flame, and it gives a ghastly, yellow light; makes folks like ghosts, you know.

"But that odor comes from your breath."

"Yes, m'dear; in the thirty-seventh degree I personate the chief demon with flames coming from his mouth. I take a mouthful of alcohol and a swallow of salt, and then set fire to it. But, m'dear, you mustn't tell these things. Secret s'ciety secrets are sacred, you know."

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RAPID METHOD OF TESTING VINEGARS.—Prepare a weak test solution of methylanilin violet, then, having turned into a saucer a little of the suspected vinegar, let fall a few drops of the test solution, and mix the two with a glass rod (a wooden toothpick will answer). If the vinegar contains mineral acids, the violet color disappears under the following color reactions: If nitric acid be the adulterant, *blue*; hydrochloric sulphuric acid, *green*.

BOOK NOTICES.

THE MEDICAL AND DENTAL REGISTER-DIRECTORY AND INTELLIGENCER of Pennsylvania, New Jersey and Delaware (1892 edition); pp. 424; price by mail, $1.25. George Keil, publisher, 306 Chestnut street, Philadelphia.

This book contains a complete list of the National and State Medical and Dental Associations, with their officers and date of meetings, medical and dental colleges of the United States, and other very valuable material; medical and dental laws, hospitals, homes, etc., also the lists of medical and dental practitioners, with their school and year of graduation, post-office addresses, and office hours.

The work has been carefully compiled, and bears the impress of being thoroughly reliable in all its departments. It is well printed on good paper, nicely bound, and its appearance carries with it irrefutable evidence that it is of that class of publications which immediately take popular hold in the special field for which they are designed.

WORTHINGTON Co., 747 Broadway, New York, announce for immediate publication as No. 29 in their International Library, "FOUR DESTINIES," by Theophile Gautier. Translated by Lucy Arrington. Illustrated with photogravures. 1 vol. 12mo. Cloth, $1.25; or in paper covers, 75c.

In this dazzling historical romance Gautier introduces into the story two political plots, one the restoration of the Indian dynasty, the other an organized effort to release Napoleon from St. Helena. The scene is primarily in England, but gradually extends to India, and embraces the rugged, gloomy island of Napoleon's banishment. The brilliant qualities of Gautier's genius are fully revealed in the descriptive part as in the characterization which includes an extraordinary variety. The orientalism is a strong feature, and with the poetic handling peculiar to the author, gives the charm of versatility to a story which is at once deep, fascinating and thoroughly sustained in its interest from beginning to end.

VARIETIES, METHODS AND RESULTS.

A technical journal setting forth for pharmacists and drug manufacturers some very interesting practical information concerning the different varieties of sarsaparilla known to commerce divides them into two classes, the "meally" and the "non-meally." To the first belong the Honduras, Guatemala and Brazilian; to the second, the Jamaica, Guayaquil and Mexican, each of which is readily distinguishable by the expert from all the others. There are still other sorts, some of them grown in this country, but all inferior to even the poorest of those mentioned. It is at least worthy of remark that the fashions in which these various kinds are put upon the market differ almost as much as do the roots themselves in quality. The Guayaquil, for instance, is roughly packed in large bales and the Jamaica in clumsy bundles, seventy-eight inches long, while the Honduras, deservedly treated with care, proportioned to its quality, is secured in tight rolls, thirty inches long and two and one-half by four inches thick, bound with roots and then packed in bales tightly covered with hides and fastened with iron bands. Caution is observed in collecting these precious roots, not to destroy the plants producing them. "The roots, which run horizontally, are uncovered in collecting, by scraping away the earth; when they are laid bare, the largest are cut off near the crown and the slender ones are left for the regeneration of the plant; the stems are cut off near the ground and a little earth and dead leaves are heaped over the crown, which soon sends up new shoots. The yield of a four-year-old plant may be sixteen pounds. Cutting may be repeated in a couple of years' time, but the yield will be less and the roots more slender and less starchy." No such care is excercised in gathering the coarse and comparatively valueless kinds, "Guayaquil" and "Mexican," which are simply torn up, dried in the sun and shipped.

Incidentally, the article in question authoritatively pronounces sarsaparilla "the king of all cures—the real 'cure-all', for it purifies the blood and restores through the blood those organs that are suffering from a functional disturbance, and thus attacks disease, whilst it encourages a healthy state of blood and habit of body, and is even in health, a perfectly harmless drug." And in particularization of its service the statements are further made that it is "a mild but efficacious alterative, diaphoetic and tonic, a popular remedy in chronic rheumatism, rheumatic and gouty pains, scurvy, scrofula, syphilis, secondary syphilis, lepra, psoriasis and several other skin diseases and especially in cachexia, or a general bad habit of body."

Its efficiency in all these and more ailments, when it is properly prepared in combination with other potent remedial agents, has been indubitably demonstrated to the thorough satisfaction of hundreds of thousands of persons, by their experience in the use of Ayer's Sarsaparilla, the base and principal ingredient of which preparation is the Honduras sarsaparilla, mentioned as heading the best, medicinally, of all the known varieties of this plant. Compounded with it and infinitely increasing its alterative and regenerative efficacy are yellow dock, mandrake, and stillingia, and the virtues of all these are extracted by the cold process, which avoids the volatilization and loss of the most desirable properties, inevitable where heat is applied as in the methods of production of other sarsaparillas on the market. Surely a drug in itself, deserving the encomiastic characterization accorded by the authority quoted and associated with others of recognized value in a conscientiously, scientifically and carefully compounded preparation, should commend itself to the confidence of the public—and Ayer's Sarsaparilla does.

BUFFALO LITHIA SPRINGS.—HOT SPRINGS.

TWIN REMEDIES IN

GOUT, RHEUMATIC GOUT AND RHEUMATISM.

WHAT THE HOT SPRINGS PHYSICIANS SAY:

Dr. Algernon S. Garnet, Surgeon (retired), U. S. Navy, Resident Physician, Hot Springs, Ark.:

"My experience in the use of BUFFALO LITHIA WATER is limited to the treatment of **Gout, Rheumatism** and that hybrid disease, **'Rheumatic Gout'** (so called), which is in contradistinction to the **Rheumatoid Arthritis of Garrod.**

"I have had *excellent results* from this Water in these affections, *both in my own person and in the treatment of patients for whom I have prescribed it.* Of course, the remedial agent is its contained **Alkalies** and their solvent properties.

"Hence it is a **prophylactic,** *as well as a* **remedy in Nephritic Colic,** *and forming* **Calculi** *when due to a redundancy of* **Lithic Acid.**"

The Late Dr. Wm. F. Carrington, Resident Physician, Hot Springs, Ark., Surgeon (retired), U.S. Navy, Surgeon Confederate States Navy:

"BUFFALO LITHIA WATER, Spring No. 2, has signally demonstrated its remedial power in **Gout, Rheumatic Gout, Rheumatism, Uric Acid, Gravel** and other maladies dependent upon the **Uric Acid Diathesis.**

"*It not only eliminates from the blood the deleterious agent before it crystallizes, but* **dissolves** *it in the form of* **Calculi,** *at least to a size that renders its passage along the ureters and urethra comparatively easy.*"

Dr. T. B. Buchanan, Resident Physician, Hot Springs, Ark.:

"*Send me five cases* BUFFALO LITHIA WATER, Spring No. 2. I have made use of this Water for **Gout** *in my own person and prescribed it for patients similarly suffering, with the most decided beneficial results. I take pleasure in advising* **gouty** *patients to these Springs.*"

Dr. G. W. Lawrence, Resident Physician, Hot Springs, Ark.:

"I prescribe BUFFALO LITHIA WATER with great confidence, in all diseases of **Uric Acid Diathesis.** When traveling, it is my habit to use this Water as a guarantee for getting a pure water."

Dr. L. S. Ordway, Resident Physician, Hot Springs, Ark.:

"I have used BUFFALO LITHIA WATER Spring No. 2, very extensively and successfully in my practice, in cases of *Rheumatism of the Arthritic* form, especially when complicated with weak, inactive *Kidneys, with inclination to Bright's Disease.* I have also found it an efficient remedy in *Albuminuria of pregnancy.*"

DR. JOHN A BLAYDES, Pres. HOT SPRINGS MEDICAL AND SURGICAL INSTITUTE, ARKANSAS. DR. R. O. BLAYDES, Sec'y.

THE STATEMENT OF DR. BLAYDES:

"We have made use of BUFFALO LITHIA WATER with patients of this institution in many obstinate cases of Gout, Rheumatic Gout and Rheumatism, with uniformly excellent results, and in diseases generally of Uric Acid Diathesis regard it as an invaluable remedy. Its action in this class of cases indicates certainly the possession of some extraordinary property."

WATER IN CASES OF ONE DOZEN HALF-GALLON BOTTLES, $5, F. O. B. HERE.

☞ *Descriptive Pamphlets Sent Free.* ☜

THOMAS F. GOODE, - - - Buffalo Lithia Springs, Va.

BUSINESS NOTES.

$100 REWARD $100.

The readers of this paper will be pleased to learn that there is at least one dreaded disease that science has been able to cure in all its stages and that is catarrh. Hall's Catarrh Cure is the only positive cure now known to the medical fraternity. Catarrh being a constitutional disease, requires a constitutional treatment. Hall's Catarrh Cure is taken internally acting directly upon the blood and mucous surfaces of the system, thereby destroying the foundation of the disease, and giving the patient strength by building up the constitution and assisting nature in doing its work. The proprietors have so much faith in its curative powers, that they offer One Hundred Dollars for any case that it fails to cure. Send for list of Testimonials.

Address F. J. CHENEY & CO., Toledo, O.

☞Sold by druggists, 75c.

HORSFORD'S ACID PHOSPHATE

For the Tired Brain from Over-Exertion. Try It.

For Seasickness Use Horsford's Acid Phosphate.

Dr. W. W. Blackman, Brooklyn, N. Y., says: "I am very much pleased with it in seasickness Several cases have been brought to my attention where it afforded prompt and entire relief."

Brass and Bronze.—Brass and bronze are two alloys of copper. The first is composed of copper and zinc, the last of copper and tin. Both historically and scientifically these two compound metals are of greater interst than almost any others. Copper was one of the first metals discovered, extracted and utilized in the earliest periods of our history, and antiquaries are accustomed to speak of a "bronze age" to express that interval of time during which this metal formed many of the implements used for industrial purposes and warfare.—*Chambers' Journal.*

Ripans Tabules cure constipation.

Horsford's

ACID PHOSPHATE,

Recommended and prescribed by physicians of all schools

FOR

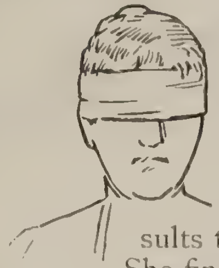
DYSPEPSIA, NERVOUSNESS, EXHAUSTION,

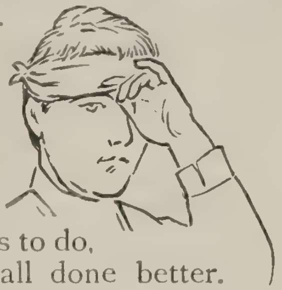
and all diseases arising from imperfect digestion and derangements of the nervous system.

It aids digestion, and is a brain and nerve food.

Descriptive pamphlet free.
Rumford Chemical Works, Providence, R. I.

Beware of Substitutes and Imitations.





Every Woman is an Unbeliever.

She can't believe, to begin with, that Pearline can do so much. She hears that everybody is using it; finally she tries it. It does all she's heard of; it saves all that she's been told. She take comfort in using it. But She can't believe that so much can be done safely. She consults those who have used it for years. She finds that Pearline has been tested and proved in a hundred ways; that it's harmless to hands or fabric; that it's as safe as good soap. Then She can't believe that she ever did without it. She has less to do, she gets more done—and it's all done better. Her clothes last longer—they're not rubbed to pieces. Her housework is easy; her time is her own. She believes in Pearline, and tells her friends about it—(that's the most effective kind of advertising).

Beware Peddlers and some unscrupulous grocers will tell you, "this is as good as" or "the same as Pearline." IT'S FALSE—Pearline is never peddled, if your grocer sends you an imitation, be honest—*send it back.*

316 JAMES PYLE, New York.

A PRACTICAL PORTABLE STEAM HEATER.

Steam heat is often desirable but owing to the expense involved in the purchase of a steam boiler and the care necessary for managing such apparatus, it can only be profitably introduced in large buildings. At least such was the case but all this is now changed. By an ingenious invention the Ardent portable steam heater, which is amply covered with patents, the public is enabled to have steam heat in any room in a house or office. The apparatus is very simple and the only surprise is that no one has ever thought of it before. It is an ordinary radiator, constructed of strong steel and connected with a small cylinder under and attached to the radiator. This cylinder holds about a quart of water which being heated by either a gas jet from an ordinary burner under it, or a coal oil lamp, made for the purpose, is quickly converted into steam, and this circulating through the radiator gives off a large amount of heat, is condensed and returns to the cylinder to be again converted into steam and so on. It can easily be understood that a large amount of heat can thus be obtained—in fact with a small radiator any ordinary sized room can be quickly heated to 80 deg. or even 90 deg. F.

These heaters are beautifully decorated and are an ornament to any apartment; very simple in construction and operation. They are mounted on casters, and can be easily located or moved to any desired position in the room. Cheapness, beauty and low comsumption of fuel recommend it to everybody requiring heated apartments. It can justly claim economy in fuel, cleanliness, durability, safety, beauty, comfort and novelty. It is automatic, and above all is so cheap that any one who can buy a cheap stove, can buy one or more of these. It is easier managed and gives better results for less labor and outlay than any stove made. For further information address the manufacturers, Dean & Graves, 84 North Moore street, New York.

◆

"Ten men bit the dust," says the sensational reporter of the West. The must have tasted pies sold by the train boy.—*Picayune.*

Teacher in Kindergarten—"You've omitted something, Mabel, in making your letter 'i's'. What is it?" Mabel—"I guess I forgot to put eyebrows over 'em.—*Puck.*

THE LINE OF LAKES.

The above name has been applied to the Wisconsin Central Lines, on account of the large number of lakes and summer resorts tributary to its lines. Among some of the well-known summer resorts are Fox Lake, Ill., Lake Villa, Ill., Waukesha, Mukwonago, Cedar Lake, Neenah, Waupaca, Fifield, Butternut and Ashland, Wis. These lakes abound in numerous species of fish, such as black bass, rock bass, pickerel, pike, perch, muskallonge, while sportsmen will find an abundance of game, such as duck, geese, quail, snipe, etc. In the grandeur of her scenery, the charming beauty of her rustic landscapes and the rare perfection of her summer climate, the State of Wisconsin is acknowledged to be without a peer in the Union. Her fame as a refreshing retreat for the overheated, careworn inhabitants of the great cities during the midsummer months, has extended as far southward as the Gulf of Mexico and eastward to the Atlantic.

Pamphlets giving valuable information can be obtained free upon application to G. R. Fitch, G. E. A., New York, N. Y., or Jas. C. Pond, General Passenger and Ticket Agent, Chicago, Ill.

Fine Table Wines

From our Celebrated Orleans Vineyard.

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Producers of the

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SAN FRANCISCO.

GROWERS OF

Chateau d'Orleans, the highest grade Claret made in America.

Cabernet Blend, the richest and finest of Table Clarets.

O V Chablis, possessed of all the delicate pungency of itsFrench counterpart.

O V Sauterne, with the exact character and *Seve* of imported Sauternes.

The **Chateau d'Orleans** and **O V Chablis** are sold in glass only.

"Eat BEECHNUT Hams and Bacon"

OFFICE OF
ANALYST PUBLISHING COMPANY,
No. 19 Park Place,
New York, July 22d, 1892.

TO THE MEDICAL PROFESSION:

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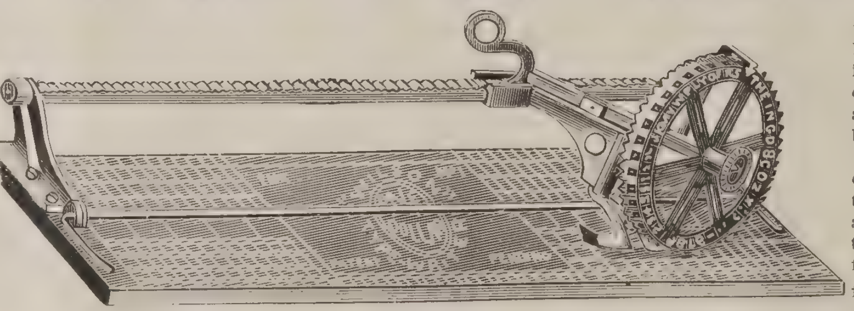

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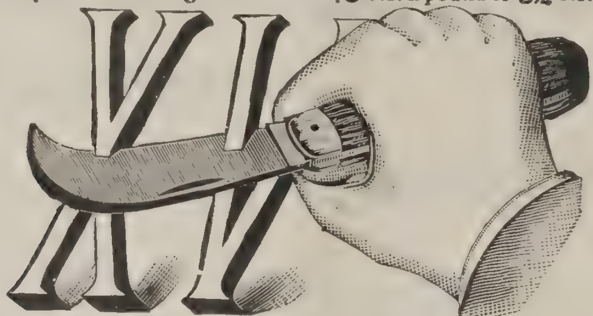

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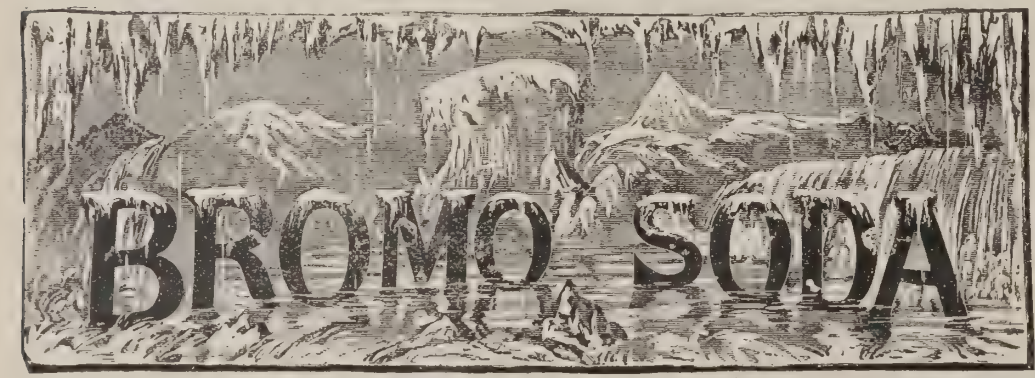

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CONTENTS.

Page
Adulteration 289
Aromatic Disinfectants 289
Cocoa Preparations 289
Day in Bed 288
Do Peddlers Disseminate Disease? 289
Editorial 285
Stretching the Truth about Chicago Dressed Beef—Noises and Nerves—Food Investigations—Thank You.
Education in Treating Nervous Girls 287
Essay on Spices 290
Household 290
Hygienic 288
Medical 287
Minister's Mistake 290
New Adulteration Law 290
Pure Food Exhibition 291
Reviews 291
What to Do in Emergency Cases 287

STRETCHING THE TRUTH ABOUT CHICAGO DRESSED MEATS.

The Halifax *Herald* of July 29 goes a considerable distance out of its way to create prejudice against Chicago dressed meats by quoting a mass of misstatements and ingenious manipulations of a mixture of lies and facts, mostly lies, from the *Evening Mail.* The inference evidently desired to be drawn is that Chicago dressed meat is prepared in a place that smells badly and with more or less torture to the animals. Evidently the writer could not truthfully charge uncleanness, so he disingenuously says that the packing houses of Chicago smell of hog and that his ears were saluted with the lamentations of the animals. We wonder if this tender-hearted philanthropist has ever passed a train of cattle, sheep or hogs, or even a barnyard, without having his acute sense of smell and hearing dismally saluted? Did he expect an odor of attar of roses or a sound of melodious song? All he says of cruelty to animals in the slaughter-houses of Chicago, aside from the fact that they are killed, is a lie out of the whole cloth.

The American Analyst asserts without fear of contradiction that the necessary work of slaughtering and dressing animals in Chicago abattoirs is carried on more humanely and in a manner more in accord with modern humane ideas and sanitary cleanliness than anywhere in the world. The Chicago Humanitarian Society has been established over a score of years, has a branch office at the stock yards, all the animals there are received, handled and killed under its supervision as well as that of municipal, State and Federal inspectors, and there is no abattoir anywhere in the universe where greater pains are taken as to care of the animals, scrupulous cleanliness, sanitary measures, inspection as to healthiness of the meat and disposal of the offal than at the Union Stock Yards in Chicago. To illustrate this and to disprove every statement made in this Halifax attack on American meats, we will quote from an article published by us June 15, 1892, on "Our Beef Supply." In describing the Chicago method of slaughtering, we said:

> Each beast for slaughter is driven into a narrow separate pen, the cleanest place he ever was in, where there is no sight or scent of blood to alarm or excite him. A man standing upon a boardwalk above, stuns him by a blow, delivered with a heavy sledge, upon his forehead. The concussion causes an abnormal rush of blood to his head and neck. Before he regains consciousness he is drawn out on the "bed" of the slaughter-house, is hoisted by a chain attached to his hindlegs, his forelegs are spread wide apart, and one powerful slash with a long keen knife cuts through his neck almost to the backbone, so that his head seems nearly severed. The blood gushes out in a torrent draining both arteries and veins. The utmost care is taken that this shall be thoroughly effected, as upon it depends, in great measure, prevention of the tendency to decomposition that is inevitable where the blood is left standing among the muscular tissue.
>
> In all the subsequent handling for removal of the intestines and other internal parts, skinning, dividing into halves, washing and drying—the details of which need not here be gone into—from the time that the beast is first hoisted up until he is finally stowed away in the cooler, his flesh never touches the floor, and of all the forty-two men who handle him on the way, each doing some one particular thing, and all working with the regularity of machinery and the speed of lightning, not one has laid a dirty finger upon him. There seems to be an almost morbid fear of harboring somewhere about the place germs of decomposition that might taint the meat. The first element of security attained, that of thorough draining out of the blood, is shown by the condition of the meat and by the fact that the heart, when taken out, is always found to be perfectly empty. But that is only the beginning. The men whose department of the necessary handling compels them to get blood on their hands, must wash them instantly at the spouting hose held near them, and never touch a stained finger to the meat after it has been washed. Not only is the blood run down out of sight to the floor below, where it is instantly put into treatment for conversion into a valuable fertilizer, but every spot that is spattered on the cement floor is immediately washed down with constantly pouring streams of water. The men are required to keep their bodies perfectly clean; must change their clothing entirely at every resting spell—to facilitate which a laundry is maintained in constant operation in the slaughter house, and practically unlimited supplies of working-clothes are provided. All odors that might prove deleterious, and all dirt of every kind, are forbidden.
>
> The meat having been carefully trimmed, freed from all ragged edges, and even suspicions of bruises, and very carefully washed and dried, is hung in the refrigerators, in a temperature of 38 deg. F., where it remains forty-eight hours. Then it is shipped in refrigerator cars, at the same temperature, to all the cities and towns in the Middle and Eastern States, enabling everywhere an ample supply of the best beef in the market at such prices as never prevailed prior to the introduction of this service, far below those commanded wherever local slaughterers monopolize the business. At least a week elapses from the time of slaughter until the meat reaches a market at so remote a point as New York or Boston, so that it is upon arrival in perfect condition for the table; but meat thus refrigerated, after such elaborately careful preparation to keep it sweet, can be kept out of refrigerators then for two days, even in the very hottest weather, and still be perfectly sweet and good, or it may be kept for an indefinite length of time at a moderately low temperature. That it withstands conditions that would be ruinous to meat prepared as is customary in New York, or nearly all other local slaughter houses, is sufficiently demonstrated by the unexceptionable excellence it uniformly shows in the remote English markets to which it is regularly shipped.

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NOISES AND NERVES.

We find the following remarks on this subject in the London *Popular Medical Monthly*, and as it voices exactly what we would say on the subject, we adopt it with slight alterations:

> For dwellers in cities noises are the cause of a great amount of suffering. Hot days, when invalids require open windows, and persons in health are more or less irritable and nervous, bring up the subject of city noises. It would be impossible to calculate the exact amount of injury noise produces, or how long it may retard recovery, but it must be considerable. The wealthy can do something to deaden the sound by plate-glass windows and covering the street with straw, but to the poor who have nerves equally with the rich, there can be no such luxury, and the busy noisy thoroughfare may turn the scale in a life that is hanging in the balance. There can be no doubt that many of the noises—street cries and the like—could be and should be suppressed as an intolerable nuisance, especially in the early morning. If any of our readers have the misfortune to live near a dairy, they will know the meaning of "noises," for anything more noisy than the rattling of milk cans it would be difficult to conceive. All such places should be indicted as a nuisance, unless they cease to throw about milk cans as if they were india-rubber balls. There is no earthly necessity why milk cans should be handled in the rough way they are, and so as to disturb, in the

early morning, scores of families in the immediate neighborhood.

Church bells are another cause of disturbance. Speaking of these, the *Journal of Commerce* recalls a judgment given by the late Lord Chief Justice Jervis in 1851, in which he said, "the bells might undoubtedly be made use of in such a manner as to create a nuisance," and in this case they were liable to legal restraint. Public opinion is divided concerning the use of church bells in the city. It is urged that where timepieces are so abundant they are useless as indicating the hour of service. We do not think that this is quite true, as many will sit in full view of a clock without being reminded of the flight of time. To such the stroke of the bell is almost essential as a call to the house of worship. The burden of the complaints that have come to us rest on the ringing of bells at an early hour in the morning, while most people have their night's sleep yet unfinished. In some neighborhoods there are sharp peals at or before six o'clock, and they are repeated as the successive hours of service are reached. We have no doubt that to many they are a real nuisance, the continuance of which can hardly be justified on any reasonable grounds. The bells at later hours, beginning at ten and repeated for afternoon and evening service, and for the session of the Sunday school, are by no means so annoying, since few people in good health are then in need of sleep. Even these later peals, however, will have a most painful effect on those who are languishing on beds of pain. We have sat by the side of the sick, to whom every stroke of the bell was a messenger of pain. The quickened pulse, the increased temperature of the body, the quivering of the excited nerves, all told of the injury to the patient, and frequently no alleviating medicines and no interval of rest would bring the invalid back to the recedent condition until long after the day with its church-going bells was over. It is a serious question whether, on the whole, the church bells do not inflict more harm than can be offset by the compensating good. At any rate, if not abolished, the annoyance might be abated by diminishing in a large degree the amount of the service. A few signal strokes might be borne with more patience than ten minutes of ringing succeeded by ten minutes of tolling, which is now the common infliction. The church bells are not the only offenders, but in the city most of the factories have substituted the steam whistle for the metallic peal. This is not a gain to the sufferers except that the shriek of the steam fiend is not as long continued as the ringing of the bell. We think these should be abated in all populous places. The owner of a factory has no right to send that fearful sound into a thousand homes for the sake of giving notice to the persons he employs that the hour has come for their assembling. We know many to whom these morning calls are a constant terror all the year round. They cannot accustom themselves to the repetition. Some are startled out of their morning sleep as by a sudden stroke, and do not recover for hours; but most who dread the sound will waken before it is heard, and lie in dread until it is over. The ordinary noises of the street, the outcries of itinerant venders, the roll and jar of carts, the awful hand-organs, all make a confusion of sounds difficult for nervous people to bear; but the early bells and whistles ought to be suppressed at once and for ever.

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FOOD INVESTIGATIONS. II.

The second portion of the report for 1891 of the food investigations now in progress at the Storr's School Agricultural Experiment Station treats of the study of dietaries. The first portion, of which an account was published in the last number of the ANALYST, was a tabulated statement, with comments, of the analyses of foods. The first may therefore be considered as the collating of fundamental facts, and the second as an effort at the application of them. This second part is very voluminous, and the minuteness of detail is all that could be desired. Indeed the impression most likely to be made at first is that a broader scope would have been better even at a sacrifice of some detail, for the number of studies is small comparatively. The second and wiser thought is that the detail is necessary, and it is only by the great multiplication of specimen studies that general laws may be determined.

Two dietaries were studied in the course of the year, one being that of a boarding-house where thirteen men and eight women ate, and the other that of a chemist's family in Middletown. In this family were two men and three women. In addition to these two studies a review is presented of a series of thirty similar studies made by Mr. Atwater in 1886, in connection with the Massachusetts Bureau of Statistics of Labor. These are furthermore compared with a number of other specimen dietaries such as that of the laborers in a brick yard in Middletown, Conn.; of a well-to-do family in the same town; of a number of students in Wesleyan University; of the college football team; of United States soldiers and sailors (based on circular No. 8 of the surgeon-general's office), and of a number of reports from England, Sweden, Denmark and Germany.

The general plan of the investigation is described thus: An account was taken of all food materials of nutritive value in the house at the beginning of the period of study, of all that was purchased during the period, and of all that remained on hand at the end of the experiment. In addition to this all the kitchen and table waste of the food were collected, taken to the laboratory and there weighed and analyzed. From the amounts calculated thus, and the composition of each material as shown by analysis, the amounts of nutritive ingredients were estimated.

While the really scientific part of the investigation had to do only with the actual eating of the individuals, considerable attention is paid in the report to the question of food economy; a question of great importance and certainly cognate to the science of nutrition though not, strictly speaking, a part of it. Concerning this, Mr. Atwater says: "The terms 'refuse' and 'waste' and the ways of determining the amounts demand a word of explanation. The weights given for the food materials are those found by weighing them as received, and with few exceptions include both edible portion and refuse. The proportions of refuse in the meats were found by weighing the refuse and edible portion of the specimen analyzed. These figures for refuse accordingly represent actually inedible material and not waste in the proper sense, i. e, valuable material wasted, except in so far as the bone, etc., may be utilized for soap. Other figures for refuse of vegetable foods, e. g., parings of potatoes and turnips, stem and outside leaves of cabbage, rind and seeds, etc., of squash were determined approximately by weighing at the house. They represent not only the actual inedible material, but also more or less of edible material removed with it. For instance it was estimated from weighing the parings of the potatoes, that out of 100 pounds fifteen pounds were removed in the kitchen and only eighty-five pounds served at the table. These fifteen pounds were made up in part of the skin and adhering earth, which might properly be called refuse. The next was edible material which if it had been saved and served, would have been as wholesome as that which went on the table, and may be appropriately designated as waste. The terms refuse and waste are here used somewhat indiscriminately. Perhaps a correct terminology would make the refuse consist of the actually inedible material and waste, the latter term covering the edible material rejected with the refuse. While the use of terms is unimportant the subject itself is an important one for American household economy."

Further, he says, speaking of one of the dietaries (that of the boarding-house): "About one-ninth of the total nutritive ingredients of the food was left in the kitchen and table wastes. The actual waste was worse than this proportion would imply, because it consisted mostly of the protein and fats which are more costly than the carbohydrates. The waste contained nearly one fifth of the total protein and fat, and only one-twentieth of the total carbohydrates of the food. Or, to put it in another way, the food purchased contained about 23 per cent more protein, 24 per cent more fat and 6 per cent more carbohydrates than were eaten. And worst of all for the pecuniary economy, or lack of economy, the wasted protein and fats were mostly from the meats which supply them in the costliest form."

In the dietary studies, are given proposed standards for different classes of different people under different circumstances. They are given as illustrations of about the proper quantities of food that such people are supposed to need, but it is freely admitted that individual peculiarities and demands will always vary somewhat from the standards. For example, the American standard for a man at moderate work calls for 125 grams (276 lbs.) of protein, 125 grams of fat, and 450 grams (992 lbs.) of carbohydrates per day. It is, of course, easy to devise a simple ration which would give exactly these proportions and amounts. For example, an approximation to it would be furnished by ten ounces of lean beef, free from bone, twenty ounces of bread, twenty-five ounces of potatoes, and four ounces of butter, but it is not to be expected that such a ration would be satisfactory to any ordinary man for a steady diet at all events.

It is, however, considered practicable to see if a man varies inordinately from the standard, and so to correct what are assumed to be errors in eating. And in Mr. Atwater's judgment it will usually be found in conducting such experiments that the greatest deviation will be in the case of fats, there being much more used generally than the accepted standards call for. It is noted as being difficult to keep from exceeding the allowance of fats if meat is eaten two or three times a day, and in this connection the use of fish, especially of the white-fleshed species, is recommended in the place of meats. The allowance of protein can thus be very greatly increased without a corresponding increase in fat.

In the multiplicity of figures it is difficult within the narrow limits of this article to present enough to fairly illustrate the report. The result of one dietary, however, may be taken as illustrative in part. It is the one supplied to the laborers in the Middletown brick-yard. These were ordinary Canadians, Irishmen, and some native Americans. Their work is rather trying, but as was explained by the proprietor of the yard, he found it to his advantage to get unusually good workmen, and that one of the best means to do this was "to give them good board, which they think more of than anything else." He added that the food furnished was nearly all actually eaten, very little of it being thrown away. He sometimes took on freshly-arrived immigrants from Castle

Garden and always found that they had been accustomed to eat little or no meat. "They come to me in very poor condition," he said, "but it is wonderful to see how they pick up, even with their hard work."

This dietary is computed to be equal to 222 grams of protein, 263 grams of fat and 758 grams of carbohydrates per man, per day. This, it will be noticed, is (roughly speaking) somewhere near double the ration estimated as a standard for a man at moderate work. The brick makers' dietary was the richest one reported on, and the one next to it was that of the college foot-ball team, who consumed 181 grams of protein, 292 grams of fat and 557 grams of carbohydrates per man, per day.

Measuring these dietaries by calorics or units of potential energy, the brick makers consumed 6,460 calorics per day, and the students 5,740 calorics. The smallest consumption noted was that in a boarding-house at Riviere-du-Loup where 2,680 calorics per day was the allowance. Next to the smallest was in a family at St. John where 2,950 calorics was the average. In these two places the people were all French Canadian laborers.

As contrasted with these figures it is interesting to note the European standards for daily dietaries for people of different classes. A woman at moderate work is estimated to require 2,425 calorics; a man at moderate work 3,030 calorics to 3,150 calorics (different estimates); and hard-worked laborers 3,750 calorics. Mr. Atwater says, however, that these figures are not to be taken as accurately but approximately expressing the differences. In a majority of cases the figures represent the quantities of food purchased and make no allowance for waste which was undoubtedly larger in America than in Europe. This is a good illustration of the inexactness of the science as a whole. The comparison, however, shows very clearly one thing which has hardly been appreciated hitherto, though it has been known in a general way. This is the great demand for food which comes with the increase in muscular exertion. Another point is the unquestionably larger quantities of food consumed by working people in New England as compared with people of corresponding conditions in Europe.

As to the politico-economical deductions with which the report ends, there is no necessity to summarize it here. It is of some value, but it is an excursion into a foreign field in which we hardly need the guidance of chemists, however able they may be in their own line.

THANK YOU.

The *Daily Post* of Houston, Tex., one of the ablest and best edited Southern papers, says:

"The American Analyst is at hand. It is a magazine that should find a place on the reading table of every intelligent being who wishes to avoid the rocks and shoals of impure food. There are many interesting chapters on household subjects that will well repay careful reading."

MEDICAL.

EDUCATION IN THE TREATMENT OF NERVOUS GIRLS.

Dr. Louis Fiske Bryson of New York, at the annual meeting of the American Social Science Association held in Saratoga, August 30, read a paper on this subject of which the following is an abstract.

First, what is a woman for? For herself? For the world? For man? For herself, primarily; for the world, just as man is for the world; and for man exactly in the same sense as he is for her—that is, for companionship, mutual help, encouragement and common interest. And what are nervous girls? How can you tell them when you see them? Sometimes their recognition is easy, sometimes not. By nervous girls are meant those born with an originally unstable nervous system; those who have what is known as the insane temperament, yet may never become insane, and those who suffer from some definite nervous disease, as epilepsy, St. Vitus's dance, hysteria, migraine, neurasthenia, neuralgia, and like abnormities. The insane temperament is an exaggeration of what is known as the nervous temperament. It is congenital and due to early interference with the normal development of the brain by injury or disease. Some of its manifestations in childhood and infancy are irregular or disturbed sleep, irritability, apprehension, strange ideas, great sensitiveness to external impressions, high temperature, delirium or convulsions from slight causes, disagreeable dreams and visions, romancing, intense feeling, periodic headache, muscular twitchings, capricious appetite, and great intolerance of stimulants and narcotics. Later, there is often excessive shyness or bravado, always introspection and self-consciousness. The initiative and imaginative faculties may be quick and the affections and emotions strong. Passions are unduly a force in the character which is commonly said to lack will power. Disastrous breakdowns may occur in any time of stress and strain. Sometimes there is a high order of intellect and efficient work is done; but desultory, half-finished tasks, together with shiftlessness, lack of common-sense and judgment are far more frequent.

Doomed throughout life to inevitable periods of disablement and consequent interruptions in continuity, their early education, in order to be practical, should be along lines of universal interest that last a lifetime, and will endure when everything else fails or is outgrown. Of these, general literature stands first. Next comes history, the most important study of all for a woman, so the French say, to be followed by social economics, and one of the objective sciences. This can be seasoned with something of art and a taste of foreign languages. If liberal culture that concerns itself most deeply with conduct and affairs is to know the best that has been said and done and created in the world, it is well for the frail of physique that English has the power to make these things plain. The English language is second to none in force and directness and in power to unravel confused and hurrying thoughts. Time necessary for proficiency in foreign languages can be better employed by persons not particularly robust than in learning four or five words to express one idea. So, too, with fine arts, unless ability is phenomenal.

As nothing in nature requires so much oxygen as a nerve, the necessity of outdoor sport and exercise is at once apparent. The bicycle has distinct value, also rowing, swimming, riding, tennis, old-fashioned croquet, and sometimes cricket. Dancing and bowling develop strength and grace; and fencing and boxing are good for boys and girls alike. Housework constitutes an admirable series of home gymnastics. In childhood should begin instruction in the art of dressing well, according to the strictest conventionality. Theoretic dressing is always dangerous, especially for those who have weak nerves. Whatever makes them appear different from others, whether fantastic, unusual, more artistic, ideal, elevated in thought or more picturesque, must be gently but firmly set aside. Anything approaching a "costume" is to be deprecated for nervous girls, as it attracts attention and deepens their self-consciousness, the very thing to be avoided. One source of irritation is removed when a child looks like all the rest of the conventional world, for self-possession and self-reliance are more a matter of clothes than at first appears.

The best thing that can happen to a nervous girl is to be liked. Placed outside the combat so often on account of physical insufficiency, it is a fortune to her more than to another to have warm friends whose sympathy and interest are never failing. The first duty, therefore, of the guardians of such a child is to instil into its mind the spirit of self-denial, that has for its outcome graces of speech and movement, silence and self-command, pure tones and distinct utterances, together with tact and good spirits. To please and be pleased, if early taught, remains a fixed habit, in spite of vicissitude and change. The effort necessary to be cheerful and sympathetic, in spite of physical weakness, prevents too much introspection and mental indolence, and rouses activities that might otherwise remain dormant.

Ruskin's three essentials of education are these: To know the world where we are, wither we are going, and what we had better do about it. What we are going to do about it depends upon the physique, for mind and body are so intimately connected as to be practically inseparable during life. Whither the nervous girl is going depends upon education, for judicious training limits, even when it fails to prevent the further development of morbid elements. Shorter school hours, more time in the open air, more housework and accomplishments requiring bodily activity, perfect manners and attention to neatness and conventionality in dress, the study of objects close at hand, familiarity with the recorded thought of mankind, and knowledge of the principles that underlie the social condition, the government, and practical politics, together with strict regard to bodily health and sufficient rest, are some of the elements necessary to the happiness and efficiency of the nervously weak. Their shrunken individuality must be expended by means directed at once toward repression of egotistic instincts, toward the enrichment and orderly arrangement of ideas, and through multiplication of acts and external relations, toward the energizing of the insufficient or diseased will. To outline definitely this special education is to introduce a factor in rational therapeutics capable of widespread influence and permanent good, and to revolutionize the ordinary treatment of nervous disease.

WHAT TO DO IN EMERGENCY CASES.

Apparent Death.—*From Drowning.* Place person on abdomen, one arm under forehead; raise body to empty stomach air-passages of water and mucus. Remove clothing from chest. Lay the person on his back with roll of clothing (a man's body will do) under the back, to raise stomach, and lower head. Pull tongue forward, and secure it by tying string over it and under the jaw. Stand astride and kneel at patient's head; grasp the arms below the elbows and draw them outward, upward and backward till they meet over the head; keep in this position two seconds, then carry them down to side of chest again till elbows nearly meet over the stomach, and press firmly for two seconds. Repeat fifteen times per minute. Persevere in these efforts for hours, or until breathing has been restored, then promote circulation by friction, artificial heat, etc. As soon as the person can swallow, give hot milk, beef tea or coffee to drink.

From Cold.—Place body in cold room and rub with snow or bathe in ice-cold water until limbs are soft and flexible, then place in bed and rub with flannel; warm the room gradually and wrap in flannel. As soon as the person can swallow, give spoonful doses of hot coffee.

From Inhaling Gas, Chloroform, Etc.—Expose to fresh air, loosen clothing; keep head cool and feet warm. If necessary, use the method of resuscitation from "Apparent Death from Drowning."

From Hanging, Choking, Etc.—Endeavor to induce respiration by same method as recommended from "Apparent Death from Drowning."

From Lightning.—Dash cold water on head, face and body; pour it on head from a height. If this does not revive, place the naked body in a freshly made opening in ground, in a half-sitting posture, and cover it all over, except the face, with fresh earth.

BITES, *of Animals or Snakes.*—Heat a knitting-needle or stout wire to a white heat, and burn the wound; act quickly. If the wound is on the arm or leg, tie a cord above the wound.

BROKEN LIMBS.—Support the injured part on blankets or pillows.

BRUISES.—Apply cloths wrung from hot water. Re-apply as soon as cool. Later apply diluted tincture arnica or essence peppermint.

BURNS.—To extinguish fire, wrap a woolen garment or rug around the person. When the fire is out, undress carefully in a warm place. Do as little injury as possible. Soak old linen in equal parts of linseed oil and lime-water, or in a solution of saleratus (tablespoonful to pint of water), and apply. Flour and molasses mixed are also good. Protect the parts from the air.

From Swallowing Buttons, Etc.—Bend the person forward and give a sharp stroke on the back. Remove obstacle if within reach. Bread swallowed will sometimes clear a small obstacle from the throat. Do not give cathartics.

CONVULSIONS.—Undress as quickly as possible, and place in warm bath. Keep the head cool. As soon as proper, rub dry and wrap in warm blankets. Inhale camphor. Keep quiet.

CROUP—Apply warm, moist cloths to the throat, and place the child in a moist atmosphere. Let the child breathe over steam.

CUTS.—If profuse bleeding occurs, use pressure above the injury, if on hand or feet, and apply styptic cotton or old linen ravellings. If bleeding is slight, cleanse with warm water and bind with a soft cloth.

DIZZINESS.—Give plenty of fresh air. Loosen clothes Inhale ammonia or camphor. Rub feet and hands. Give water to drink.

EARS.—*Flies or Insects in Ears.* Put a drop or more of glycerine or sweet oil, simply to entangle the offender. As a general rule, glycerine, oil, or any sticky substance should not be put in the ear. If a hard substance gets in the ear, unless it can be shaken out, do not interfere further. For earache, use warm cloths externally, and, if necessary, put warm water in the ear.

EYES.—When particles of coal or dust get into the eyes, unless removed easily with the softened end of a small stick, see the doctor at once. When lime gets in the eye, wash carefully, and put in olive oil.

HEMORRHAGE—*From Lungs.* Lie down and do not cough if possible to prevent. Use cold drinks. Ergot is useful—half teaspoonful dose. *From Nose.* Apply ice to nose, externally and internally. Scrape lint and apply to nostril. Do not remove clots. Stand upright and raise both arms above the head.

HYSTERIA—During an attack, guard person against injury; loosen clothing and give plenty of fresh air. Keep head cool.

POISONS.—Produce vomiting as soon as possible. Use mustard—teaspoonful in pint of water —or ipecacuanha—one-fourth teaspoonful to a cup of warm water. Repeat, if needed, in fifteen minutes. After vomiting, if sleepy, keep awake by moving about. Drink strong coffee if necessary.

STINGS, *of Bees, Etc.*—Examine carefully and remove sting with forceps. Apply camphor, ammonia, or arnica diluted.

SUNSTROKE.—Place in a cool place, loosen the clothes; keep the head cool and feet warm.—*St. Louis Clinique.*

FORCING THE SECRETION.—A Chicago paper is responsible for the following story in regard to the source of pepsin which has become such a fad of late. We do not vouch for it, but give it as stated. "The pepsin sold in the drug stores is the veritable product of the animal stomach, and generally of the stomach of the hog. One factory in New York has the oddest method of preparing the article that ever entered the human mind. A number of perfectly healthy hogs are fattened for market, and for thirty-six hours before killing time are deprived of all food, not even being allowed a drop of water. Then the trough from which they are accustomed to eat is covered with strong wire netting, and the most appetizing slops and hog delicacies, smoking hot, are poured into the trough. The fumes ascend with grateful fragrance to the porcine nostrils, the hogs all run to the trough and stand over it, ravenous with hunger, squealing and fighting with each other for a chance to get at the food. The iron netting prevents them from tasting the food, and while they are still thinking about the matter they are killed, and, their stomachs being taken out, are found perfectly full of gastric juice, from which the pepsin is prepared."

RINGWORM.—Take of oleate of copper ½ drachm; benzoated lard, 1 ounce.

Mix, and rub into the part night and morning. —*Dr. Shoemaker.*

TREATMENT OF SWEATING HANDS.—The *Journal de Medicine* gives the following: Take of tincture of belladonna, 1 drachm; cologne water, 1 ounce.

Mix. Add a little glycerine at the moment of using, and with the mixture rub the hands strongly. The hands should be first washed in soft water and thoroughly dried.

THE ORIENTAL LOTION.—A cosmetic lotion much used by the Orientals as a beautifier of the skin, is made up of the following: Take of bichloride of mercury, 60 grains; distilled water ½ ounce; the whites of 3 eggs; lemon juice, 3 drachms; sugar, 1 ounce.

Mix. This is recommended by Dr. M'Call Anderson in acne. It is a poison, and should be kept safely out of the way.

THE SWEDISH CURE FOR DRUNKENNESS.—The habitual drunkard in Norway or Sweden renders himself liable to imprisonment for his love of strong drink, and during his incarceration he is required to submit to a plan of treatment for the cure of his failing which is said to produce marvellous results. The plan consists in making the delinquent subsist entirely on bread and wine. The bread is steeped in a bowl of wine for an hour or more before the meal is served. The first day the habitual toper takes his food in this shape without repugnance; the second day he finds it less agreeable to his palate; finally he positively loathes the sight of it. Experience shows that a period of from eight to ten days of this regimen is generally more than sufficient to make a man evince the greatest aversion to anything in the shape of wine. Many men after their incarceration become total abstainers.

IT SHOULD BE.—Jones—Beg pardon, sir, but haven't I met you before? Your face seems quite familiar to me.

Smith (with a pitying smile for the other's ignorance)—I'm the fellow that was cured of the seven-year-scratches by Hunkerson's liver pills. —*Chicago Tribune.*

HYGIENIC.

A DAY IN BED FOR HEALTH'S SAKE.

DR. ANDREW WILSON.

The poets have not, as a body, devoted much of their time or talents to the laudation either of "a day in bed" or of the virtues and excellencies of "a long lie" in the morning. John G. Saxe, in his poem on "Early Rising," however, indites some sensible observations concerning the advantages of allowing the day to be well advanced before we arouse from our slumbers. His poem is not an advocacy of sloth; it is rather a justification of the wisdom of resting well and resting fully:

> "God bless the man who first invented sleep,"
> So Sancho Panza said, and so say I.
> And bless him also that he did not keep
> His great discovery to himself, nor try
> To make it, as the lucky fellow might—
> A close monopoly by patent right!
>
> * * * * * * *
>
> But blast the man with curses loud and deep,
> Whate'er the rascal's rank, or age, or station,
> Who first invented, and went round advising,
> That artificial cut-off—early rising.

There is no denying that Saxe has many adherents. But it is evident the justice of his opinion depends on circumstances here as elsewhere. Sound, healthful sleep, and plenty of it, is an essential of health. The "Eight Hours Bill" might with advantage be applied physiologically to the requirements of the body in sleep. For the young and the old, there is, of course, an increase in the amount of sleep demanded by nature. Sleep is food at the two extremes of life: it aids the building of the body in the young, and it saves the wear and tear of the frame in the old.

These remarks may serve to preface some thoughts concerning an unusual departure from established custom. We are naturally given to contemn and despise the idea of remaining in bed when our health is good and all our vital forces in fair working order. Apart from the matter of our nightly rest, we rarely think of "a day in bed" either as preservative of health or conducive to longevity. Yet, I am convinced there is much to be said in favor of "a day in bed" now and then, as an aid to health in the middle-aged, and as a measure tending to prolong life in the old.

In bed, the whole muscular system is at ease, and the wear and tear of the body is reduced to a minimum. The processes of getting rid of waste matters are in abeyance; there is less waste to get rid of, and lungs, skin, and kidneys have a measure of comparative repose. The nervous system, above all, is soothed and comforted by the "day in bed." Anxieties and worries disappear after the rest, and the individual returns to the work-a-day world refreshed and renovated, physically and mentally, in a degree such as the action of no medicines could have accomplished. In a word, the person who enjoys "a day in bed" is in the position of an engine whose fires are damped down, and whose energies are recruiting for the renewal of the work of to-morrow.

There need be little hesitation, then, in saying that, for old persons, "a day in bed" is a health-measure of vast importance. If the aged person is wise, he (or she) will make it a regular practice to spend a couple of days per week in the repose which a sojourn in bed alone can give. Rest in a chair or on a sofa will not suffice. These procedures are too nearly akin to the every-day practice to be of any service. Countless temptations to exertion await the person who is out of bed; while conversely, if he is in bed, the idea of work or of labor and movement is essentially abolished. Such repose is absolute; and if rest is a great medicine, as all know it is, for old folks, "a day in bed," as a regular and not occasional practice, may be regarded as invaluable beyond comprehension.

I go further in my advocacy of "a day in bed" as a health-measure. I happen to know the case of a busy man whose life is one long period of physical and mental activity, and who has found, of late years, that no measure possesses anything like the recuperative effects which follow a day's rest in bed. Even in his holiday season this person is given to taking an occasional *siesta* in his bedroom. Provided with light literature he enjoys his repose as another man delights in an outing, and his mental and physical energy is recruited in an easy and satisfactory manner by this practice. Hence, not for the old alone, but for those in middle life, "a day in bed" may be recommended as a measure worth trying in the light of physiological experience of its value.

It will be seen that in this view of things one may go further than John G. Saxe, who despises and condemns the practice of early rising. Possibly a new generation of poets may be found to extol the value of repose as an aid to health. Poets are beginning to show a practical spirit nowadays. But whether æstheticism be found upon my side or not, I affirm, without fear of contradiction, that, when occasion offers and business allows, there is no measure which will repair the body and recruit the mind of the middle-aged more readily or more thoroughly than the simple expedient of remaining "a day in bed."—*Herald of Health.*

DO PEDDLERS DISSEMINATE DISEASE?

Physicians and sanitarians have for a long time entertained the suspicion that the peddler and his pack are dangerous and fruitful sources of disseminating contagious diseases, such as fevers, small-pox and diphtheria. More than once the attention of the medical fraternity and health officials have been directed to this suspected channel of contagion. Heretofore the proofs have been lacking, although it was reasonably certain that they existed.

We have now the proofs furnished us that such is really the fact.

Some few weeks ago a half-dozen pack peddlers, hailing from the city of New York, thoroughly covered that section of Connecticut in the vicinity of the town of Canterbury. These venders forced their way into houses, and, opening their packs, displayed their cheap wares for the women to buy. They were generally successful, because the women bought of them to get rid of them. Two weeks after this invasion the community was startled by an outbreak of scarlet fever and diphtheria.

It was ascertained in the investigation into the causes of the epidemic that the sickness was confined to those houses in which the peddlers undid their packs.

Deaths have already occurred and the scourge is spreading.

A newspaper dispatch from Canterbury says that "in no family where the peddlers failed to get into the house has either disease appeared. It is the general opinion of the physicians who are attending the sick that the seeds of the diseases were spread by the peddlers and came from their filthy packs."

What a pointed warning for mothers with tender children under their care!

It is tolerably well known that these industrious peddlers, when at home in the cities, lodge in the slums, or in quarters which are given up wholly to the invading army of foreigners who come to us empty in both hand and pocket. Our readers do not have to be told how these miserable people huddle together like sheep, two and three families promiscuously in a room; that filth and uncleanliness abounds, as it has been too often described. It is these quarters which are a perpetual menace to the health of cities and give the health authorities the greatest concern. There they sleep in crowded rooms without ventilation and in poisoned atmospheres. They live upon unwholesome food, and are veritable windfalls for contagious diseases.

It is from these shambles, reeking with filth, disease, and ofttimes with vermin, that the peddlers in most cases go forth in the morning on their day's tramp, scattering over city and country, pushing their way into houses in their eagerness to make a sale.

How easy for them to carry the seeds of disease and particularly of diphtheria and scarlet fever, the enemies of childhood! In the case of the typhus fever outbreak in New York it has been established that that disease was carried from an infected lodging house to other places.

Women should be extremely careful about receiving a peddler and his pack into their houses, and particularly if he be a dirty specimen of his class. He may have slept the last night in a crowded house in which there were cases of scarlet fever or diphtheria, and the microbes may be in his clothes or his packs.

It will be found far cheaper in the end to buy goods from a reputable dealer, even if the great inducement of a bargain is not always thrown in.

AROMATIC DISINFECTANTS.

It is quite pleasant to know that some substances which are not only harmless to man when properly used, but also agreeable to his senses, are also antagonistic to malignant micro-organisms. The germicidal action of various essential oils has been established by a number of observers, and some recent experiments by Omeltschenk reported in the *Centralblatt fur Bakteriologie* carry us a step further in our knowledge of the subject. He has not only confirmed the results of his predecessors but has determined the activity of the number of these agents as aerial disinfectants. By specially contrived culture flasks various bacilli were exposed to the action of air containing certain proportions of vapor of the oils, and the following results were obtained: The bacillus of typhus was killed in forty-five minutes by air carrying the vapor of oil of cinnamon, the proportion required being 0.0005 gram of the oil to the liter of air; and the same result was obtained in same time by oil of valerian in the proportion of 0.0082 gram per liter. The bacillus tuberculosis was destroyed in twenty-three hours by cinnamon vapor of the strength of 0.018 gram per liter. The same result was obtained in twelve hours by the use of oil of eucalyptus in the proportion of 0.0252 gram per liter of air; and of oil of lavender in the proportion of 0.0078 gram. It was found that the activity of the vapors was increased by constantly renewing them. As saturation diminished, destructive power waned; but the growth of the germs was prevented or retarded. Of various oils experimented with, that of cinnamon exerted the greatest activity, and that of rose, the least. Others ranging between these two extremes were the oils of fennel, lavender, cloves, thyme, mint, anise, eucalyptus, turpentine and lemon. As has already been pointed out, the chief value of the experiments above noted is the fixing of a measure of power for aromatic disinfectants. They serve also to indicate the possibility that the very considerable volume of perfume given off by the multitude of flowers constantly opening during the warm months of the year, and the aromatic exhalations of many leaves and barks, may contribute to the destruction of disease-producing bacteria. But it must be remembered that so far as the efforts of man are concerned, at least, the successful application of any variety of aerial disinfection has been shown to be exceedingly difficult. While the use of perfumes may aid in the prevention of infection, such uncertain agents should by no means be allowed to take the place of those measures the value of which has been proved by experiment. It is especially important that deodorizers should not be confounded with disinfectants. The overcoming of a disagreeable smell either by destroying or masking it, is a wholly different thing from destroying the germs which may produce disease. To accomplish the former is often an easy matter, to do the latter requires the most painstaking care and the direct application to the source of infection of such agent as may have shown itself possessed of bactericidal power.

ADULTERATION.

COCOA PREPARATIONS AND THEIR ADULTERATIONS.

A REVIEW OF THE GOVERNMENT CHEMIST'S REPORT.

The growing importance of cocoa and its preparations in the markets of this country renders unusually interesting the report on this subject issued by the Department of Chemistry as Part VII of Bulletin 13, on Food and Food Adulterants.

The raw material from which the cocoas and chocolates of commerce are manufactured is from the cocoa bean, the seed of the cocoa tree (*Theobroma cacao*). The native country of this tree is tropical America, although it has been successfully introduced into other warm countries. From Mexico to Peru, on the west coast, and from Mexico to Bahia in Brazil, on the east coast, and on the West India Islands the most favorable conditions for its cultivation are met. The tree is from twenty-four to forty feet in height, blooms continuously and yields two crops a year. The fruit resembles in appearance a cucumber with the seed imbedded in its fleshy pulp, and from twenty-five to forty seeds are usually found in each one. The more important constituents of the cocoa bean are fat, alkaloidal, and other nitrogenous substances, starch, cocoa red and mineral matters. The fat of the cocoa in consequence of its quantity and agreeable flavor is the most valuable of the food constituents of the plant. It forms from 45 to 55 per cent of the husked bean and resembles more closely butter fat than any other fat of vegetable origin. Of all the other vegetable fat foods none is so highly prized as this as an article of diet.

The alkaloid of cocoa, theobromine, is very closely related to tea and coffee caffeine, and has similar effects upon the system. It is a white powder, permanent in the air and crystallizes in small rhombic needles, having a very bitter taste. The nitrogenous parts of the bean other than the alkaloid constitute from 10 to 15 per cent of the total weight and are very valuable for their food properties. The cocoa bean contains from 5 to 15 per cent of starch. The coloring matter of the cocoa, cocoa red, is also somewhat important, but it is not found in large quantities. The aroma of cocoa is produced by the presence of minute quantities of an aromatic volatile oil, which can be obtained in small quantities by distilling the roasted grains in water. The preparations of cocoa are almost legion in number. Most American manufacturers prepare a plain chocolate made by reducing the roasted husked bean to a paste and pressing into the form of cakes. When this is combined with varying quantities of sugar, vanilla, and spices of various brands, the cocoas on the market known as "sweet," "vanilla," "vanilla sweet," "spiced," etc., are produced.

The question of the adulteration of cocoa preparations depends, of course, upon the general meaning of the term cocoa. A pure cocoa, in the strictest construction of that term, would be simply the prepared bean reduced to a convenient powder, pressed into cakes of a proper size and sold as such. The extraction of a greater part of the cocoa butter and the substitution therefor of cheaper oils, starch, and other bodies must be regarded as adulteration unless the dealers distinctly print the composition of their wares so that the purchaser is not deceived. One method of keeping the cocoa particles in permanent suspension is by adding large quantities of sugar or other soluble material which so increases the specific gravity of the milk or water that the cocoa particles remain entirely suspended therein.

The removal of the cocoa butter must always be considered an adulteration, even if it be of a negative character. It is believed that one of the most frequent methods of adulterating cocoa consists in the extraction of its native fat. A simple chemical analysis of cocoa preparation would not be conclusive in regard to whether or not cocoa fat had been extracted. If the percentage of fat fell much below 45, there would be cause for suspicion, and if below 30, chemists would be justified in pronouncing the sample adulterated, or made from a very poor article of the cocoa bean. On the other hand, if the natural fat of the cocoa should have been extracted and foreign fat added, the chemist might still find the normal quantity of fat in his sample. Conclusive evidence could only be obtained by subjecting the extracted fat to an analysis to obtain some idea of its origin. Without doubt sugar and starch are the more common adulterants found and as they are harmless in their effects and are used to give increased weight to the preparation and improve its flavor, are not to be condemned when so used, if it be understood by the purchaser that they are present. When coloring matters, on the other hand, are employed to restore the original tint of the natural cocoa, when it has been very much diluted by the addition of starch or sugar, the case is quite different. According to some analyses, oxide of iron, chromate of potash, sulphate of copper, and sulphate of nickel have been found in chocolates as coloring matters. The use of all such colors should be strongly condemned. It is stated that finely-powdered tin is sometimes employed to give the preparation a metallic lustre resembling the natural one. Such an adulteration, of course, would be highly dangerous.

[To be continued.]

THE NEW ADULTERATION LAW.

At the last session of the Legislature of this State a bill was passed amending section 407 of the Penal Code to read as follows:

"A person who either, (1) with the intent that the same may be sold as unadulterated or undiluted, adulterates or dilutes wine, milk, distilled spirits, or malt liquor, or any drug, medicine, food or drink for man or beast, or, (2) knowing that the same has been adulterated or diluted, offers for sale or sells the same as unadulterated or undiluted, or without disclosing or informing the purchaser that the same has been adulterated, or diluted, in a case where special provision has not been made by statute for the punishment of the offense * * * shall be deemed guilty of a misdemeanor."

There are special provisions in the act relating to the sale of "canal ice" and the adulteration of maple sugar, maple syrup and honey.

The law as here set forth goes into effect September 1.

A MINISTER'S SERIOUS MISTAKE.

NITRIC AND SULPHURIC ACID PASSED AROUND AS WINE AT THE LORD'S SUPPER.

Considerable excitement was caused at Amenia, N. Y., on a recent Sunday by a serious mistake of the pastor of the Presbyterian church. When he purchased the wine to be used at the Lord's supper at Sunday's service, he at the same time purchased a mixture containing nitric and sulphuric acid, which was put up by the druggist, in a similar bottle to that which contained the wine. Both bottles were wrapped up alike, and on his way home he left the mixture at the church, supposing it to be the wine. The error was not detected even when the cup was filled at the church Sunday morning, as the mixture was red and the odor of it was not unlike that of wine.

Following the usual practice, the cup was passed, first to the minister and then to the congregation individually. The elder's progress among the members was followed, however, by astonishing results. A lack of the attentive devotion which ordinarily follows the receipt of the sacrament was first noticed. There was nervousness and consternation among those who had tasted of the sacrament, and those symptoms intensified rapidly. Soon one after another of the members were taken very ill, some becoming almost unconscious from fright and pain. The service was soon suspended and a rush made for a neighboring drug store, where antidotes were administered to the sufferers. Most of them recovered rapidly, and although a number are still under the care of physicians, none are expected to die.

The explanation is a simple one. The mixture is a tonic, which has lately become a favorite among physicians. It consists of nitric and sulphuric acid in alcohol. It has the smell of wine, but tastes like acid. The druggist who put up such a prescription and at the same time delivered a similar bottle containing wine should have cautioned the minister and the latter should have carefully examined the label.

HOUSEHOLD.

AN ESSAY ON SPICES.

BY CHARLES A HEINITSH.

[Read before the Pennsylvania Pharmaceutical Association, June 16.]

An essay on the Selection of Spices, asked for by the association, and assigned to the writer, is, or may be considered, an evidence that the sale of spices is a legitimate part, or a legitimate adjunct to a drug-store, and particularly to those who aim to supply demands, with the very best articles of the kind obtainable, that are asked for and needed in families.

The innovations of several kinds of business, as grocers, merchandise, etc., of keeping so many articles that are prerogatives of a drug-store, and so much having been published in the journals and newspapers of the day, about the inferiority and the adulteration of spices sold in open market by manufacturers, grocers, merchandise-stores, etc., makes now an opportune time for us to fill the want existing in every community. I mean the supplying of the best quality of every spice that is wanted, and this can be done. All that is required is to know where they are—then select them—and pay a price commensurate with the quality. Quality, not price-buyers, we should be. Cupidity for gain must not be considered or allowed.

Spices of high grade are not cheap, but cheapest to the consumer by reason of their excess of flavor, and are more remunerative, for they command better prices, and for the reputation that ensues to the seller. Here let me emphasize that purity means nothing, unless fine quality of whole goods are used in grinding; it is simply a question of how much essential oil and aromatic properties are contained in the crude article; it is these properties that make a good article effectual.

The manner and substances used in falsifying and adulterating spices, the literature of the day exposes—for that we have no use, unless to learn the tricks—and how to prevent or avoid them. The assigned subject, the selection of spices, suggests that varieties are numerous, which and what are the best to select from, and keep for sale. At the present time the plantation or cultivated spices, grown on the Penang or Prince of Wales Islands, lying at the mouth of the Straits of Malacca, such as cloves, nutmegs, mace, etc., are the finest; these are selected at the place of their growth, and afterwards hand-picked in London, except cloves, which are cultivated in a distinct class, from finest Penang to commercial Zanzibar, and Amboyan and Bencoleen being intermediate grades. The nutmegs are unlimited and very large, from fifty to sixty to a pound, rich in oil, and possess a fine, delicate aroma of great flavor and strength. The mace has a bright, orange-color, rich in fixed oil and aroma, the arils being very perfect, evidently being taken off the nuts with much care. Peppers, the Malibar, Singapore and Tellicherry, black and white, full developed, heavy fruit, well-cleansed by sifting and washing, and known as shot pepper, possess the greatest amount of pungency and fine aroma; also the largest amount of piperine and oil. The Malabar black is a special production, but expensive; most of this is used in Russia and Germany; the ground Malabar is of an exceptionally fine flavor and pungent; it is now imported into

Philadelphia. Piper longum or long pepper, is a variety that is not frequently called for, except during the fall season for pickling vegetables. Capsicum.—Several varieties of Cayenne or red peppers are grown. The African or bird's-eye, coming through the port of Natal, on the West coast of Africa, is unequaled for pungency, fine aroma and the amount of capsaicin; this kind is best also for making tincture and fluid extracts; the retention of its fine properties is attributed to its being fined, not by grinding, but by cutting-knives. Pimento, allspice.—Jamaica is the principal source of supply, and grows the finest quality; large and small fruits are in the market, and generally well cleansed, the small well developed is richer in oil, and possesses the fine pungent aromatic odor. Gingers.—The Jamaica, Cochin-China, bleached and unbleached, are used more for medicinal than culinary purposes; the rhizome of the African in its natural state, is the kind wanted and used in families, and should be selected for its plumpness and weight. It is now conceded that rhizomes cultivated at the Missions, and by other special growers, possess a finer aroma and strength than the wild or East India ginger. Cucumas we are familiar with; both the long and the round are used, but the bright-yellow powder is usually preferred for pickling and curry. Mustards, known as yellow and brown, are obtainable everywhere, colored and uncolored; the fine blends of English and Trieste, or Kentucky-grown seed, are the desirable ones, and equal to any foreign brands of English, Russian or Germany. The coloring usually added, when hot in excess, does not affect its taste, and is not considered an adulterant, but added to make it more sightly, as we add saunders and cochineal coloring to tinctures and elixirs. The cassia, commonly called cinnamon, known as saigon, coming from Cochin-China, and particularly the thin quill-bark selected from the twigs and smaller branches, known in trade as Java cassia, possesses a different and superior aroma and strength to the ordinary Chinese, though the young thin bark of this variety, of bright color, and free from spots of decay, is the kind to select from to supply a trade demand for a lower price article. Ceylon cinnamon, being rarely called for other than for medicinal purposes, is not considered. The above are the principal spices, commonly used in families.

PURE FOOD EXHIBITION.

In October next the great manufacturers of pure food products in this country will gather themselves together and give such an exhibition in the Madison Square Garden as has never been seen before, say the projectors, under the sun. There have been food shows before, you say, and truly, but a food exposition never! And those who have the matter in charge say that there's all the difference in the world. The opening affair is to be no ordinary catch penny scheme, but a great and dignified attempt to introduce to the American people pure food products. It is to be a move in the right direction—a move against our common enemy, adulteration.

Preparations for the exposition have been made on the most extensive and liberal scale. The entire garden—saving the populous northwest corner where the tuneful and the titillating will go on as usual under the eyes of Messrs. French and Morrisey—has been engaged at a rental of $31,000, and enough square feet of space has already been subleased to would-be exhibitors, the same under the ironclad rules of the association being bound in advance to show nothing but food products manufactured under their own names and guaranteed by them to be of no better quality than those they make for the open market.

The great American public will have a chance to see with their own eyes how their favorite antidotes against "that tired feeling" are put together, and many and curious will be the processes disclosed. Here catsups will be compounded, and plain, ordinary grains turned to airy fairy products only one remove from the manna of the desert. Here the cacao bean will be tried by fire and rolled between the upper and nether millstones until it comes out the minted drop or grateful cup of vanilla flavored chocolate. Here both fruits and meats will be sealed in glass and tin to await the needs of the housekeeper who is not blessed with New York perennial markets. In short, a thousand magic processes will delight the eye and store the mind with useful knowledge. From soup to post-prandial coffee, all is there disclosed, the mystic secrets of the culinary laboratory.

In order to give a dash of the romantic to their otherwise prosaic exposition, Mr. Anton Seidl and his big orchestra will give popular concerts each afternoon and evening in the auditorium. The concert hall at the Madison avenue end of the building, with a seating capacity of 1,200, will be turned over to the ladies each afternoon. There will be a brief classical concert by the orchestra, followed by a lecture by Miss Maria Parloa with practical demonstrations in cooking. The association guarantees that neither the notes of Seidl nor the voice of Miss Parloa will be permitted to advertise the wares of anyone. You will not be advised to use this man's baking powder or that man's flour, but will be taught the compounding of healthful and delicious dishes without a puff being concealed in one of them. Best of all, John Barleycorn and all his allies will have no foothold in this exposition. Indeed, outside of the booths of the exhibitors, no advertising will be allowed.

Two exhibits in the basement will furnish joy to city people who take their summer outings from the back fire-escape and do not know a cow from a threshing machine. These are the exhibits of dairy products—the National Exhibition being under the charge of James Cheeseman, who represented the Agricultural Department of the United States at the Paris Exposition, while the State dairy and creamery show will be in the hands of the State Dairy Commissioner. Do you wish to know how cheese is picked and butter gathered? Here is the place to solve the mystery. Do you want to see a miniature stock farm and dairy? Then slip up to the great Columbian Dairy Show and see Vice-President Morton's world famous herd of Guernseys putting their best foot forward, for Vice-President Morton has promised that they shall. A novel premium list is in course of preparation, which is intended to be so equitable and comprehensive as to induce all makers of choice dairy goods to exhibit their products in competition. A board of jurors of national reputation will be appointed to pass on the exhibit, so that those fortunate enough to win certificates will receive a guarantee of commercial value which can be obtained nowhere else. The butter and cheese makers of the country can thus obtain in New York the certificates of competence which they have so long desired. In addition to all these joys for eye and ear there will be grill rooms for gentlemen and restaurants for everybody, where internal "pure food expositions" may be found at all hours of the day and evening.

REVIEWS OF BOOKS, ETC.

THE CALIFORNIAN ILLUSTRATED MAGAZINE.—The September *Californian* is a striking issue. It contains among other articles a sensational exposé of spirit photography, from the pen of the well-known scientist, Dr. Elliot Coues of the Smithsonian Institute. Dr. Coues slashes the bogus spirit photographers without mercy, and makes most entertaining reading—having traced down all the fraudulent pictures. The illustrations to this paper are striking and will create consternation in the army of frauds who prey upon unsuspecting people.

Published in San Francisco. $3.00 a year.

GOOD HOUSEKEEPING for September has a generous table of contents, which embraces stories, poetry and miscellaneous articles, as well as those which relate more directly to the work of woman. It is a good number of an admirable publication, and one which is enjoying a well-deserved popularity. Clark W. Bryan & Co., publishers, Springfield, Mass.

THE WEEKLY BULLETIN.—The current issue of the *Weekly Bulletin* of newspaper and periodical literature, published at 5 Somerset street, Boston, is twice its usual size, containing a classified index of 1,300 articles from recent numbers of the periodical press. The *Bulletin* catalogues the important articles in the leading daily and weekly papers, and the monthly magazines of the United States and Canada, including many articles from the AMERICAN ANALYST. Its value to readers, writers and students, is sufficiently indicated by its title, and although still in its first volume, its success as evidenced by the current issue is a surprise to no one acquainted with its plan and purpose.

WORTHINGTON COMPANY, 747 Broadway, New York, announce for immediate publication as No. 3 in their Fair Library, ONE YEAR, A TALE OF WEDLOCK. Translated from the Swedish. 1 vol. 12 mo. Paper 25 cents.

A strange but intensely interesting volume The heroine is certainly one of the most original figures in contemporary fiction, the character drawing is true to life; its story treats of questions of love and marriage under peculiar circumstances. The narrative is interspersed with many charming descriptions.

Also announce for immediate publication as No. 17 in their Rose Library, ENTHRALLED AND RELEASED. By E. Werner. Translated by Dr. Raphael. Illustrated with photogravures. 1 vol. 11 mo. Cloth $1.00, or in paper covers, 50 cents.

This vigorous and original story, excellently told, presents, among other characters, a noble who lives in his castle among the mountain fastnesses, with a village below him, of which all the inhabitants are in a way his dependents, and at the same time his enemies. Children shudder at his name, all manner of evil deeds are imputed to him, but he is nevertheless a victim rather than an oppressor, and the clearing up of the mystery which encircles him is full of interest and animation. The setting of the story among the glaciers and the snows with the ice maiden lurking in the abysses to embrace her prey, makes it weird and poetic.

HORSFORD'S ACID PHOSPHATE

AND THE CHOLERA.

Many physicians recommend their patients to add lactic acid to the water they drink as a prophylactic against the cholera.

In one of the largest institutions in New York City they are using Horsford's Acid Phosphate in fifteen-drop doses with sugar in a tumbler of water and thus make a palatable drink not very different in taste from lemonade. The physicians there are of the opinion that this acid answers the purpose even better than lactic acid.

SUMMER COLDS.

The sudden and sharp alternations between excessive heat and remarkable cold—for the season—which have been experienced generally through the country have caused an extraordinary number of "summer colds," which are proverbially the hardest to get rid of. The "summer cold" is a peculiarly exasperating variety of congestion. One hardly ever is able to determine when and how it was "taken," as can generally be done in other seasons—and that is really more annoying that the mere statement of the fact would make it seem. Then it "hangs on" as others seldom do and seems to have a distressing faculty of surreptitiously catching reinforcements just when one begins to imagine it is going. And it not only has all the disagreeable and even dangerous characteristics common to colds, causing sore throat, wearing coughs, dull headaches, swollen tonsils, obstructed nostrils, asthmatic affections and bronchial trouble, but it often simulates closely malarial attacks. Ordinary domestic remedies and medical treatment are ineffective in dealing with the "summer cold" and it has become quite generally the accepted idea that "you've got to let it wear itself out and go off of itself." But, unfortunately, it cannot be depended upon to do that. It may wear its victim out first, or it may inaugurate some specific malady which becomes chronic. The latter was the experience of the writer of this paragraph. He contracted a "summer cold" in San Francisco and it developed into bronchitis which became chronic and—though amenable to treatment in either very severe winter weather or the ardent heat of summer—was certainly recurrent in spring and autumn. Medical practitioners of every school "took a hack" at that bronchitis and it defied them all. Finally, at the end of an exhaustive course of vain experiment with every "old woman's remedy" and nostrum recommended to him, he tried Ayer's Cherry Pectoral. That was seven years ago and the bronchitis, banished then by a little over one bottle of that preparation, has never since returned. It is therefore with the emphatic confidence engendered by personal knowledge that he ever since has recommended this medicine to sufferers from colds and the distinct affections of the larynx and bronchial tubes consequent thereupon, and in no case has it failed to realize his expectations of speedy cure. The Cherry Pectoral has been a popular household medicine, in all parts of the world for more than thirty years, and this hearty endorsement may, to a great many persons, seem of the nature of ancient history. Nevertheless, a reminder of such an invaluable remedy, at a time when so many persons are in need of it, is a practical service to the community. Physicians frequently prescribe it, as they know its curative potency to be greater than that of any medicine they are likely to have compounded especially for them by a pharmacist—though they might order nearly the same ingredients—thanks to the elaborate scientific skill and conscientious care with which it is prepared.

Little Dick—"Why do all these dressmakers have big signs sayin' they is modest?" Little Dot—"I dess they want folks to know it isn't their fault the dresses is cut so low."—*New York Weekly.*

BUSINESS NOTES.

$100 REWARD $100.

The readers of this paper will be pleased to learn that there is at least one dreaded disease that science has been able to cure in all its stages and that is catarrh. Hall's Catarrh Cure is the only positive cure now known to the medical fraternity. Catarrh being a constitutional disease, requires a constitutional treatment. Hall's Catarrh Cure is taken internally acting directly upon the blood and mucous surfaces of the system, thereby destroying the foundation of the disease, and giving the patient strength by building up the constitution and assisting nature in doing its work. The proprietors have so much faith in its curative powers, that they offer One Hundred Dollars for any case that it fails to cure. Send for list of Testimonials.

Address F. J. CHENEY & CO., Toledo, O.

☞Sold by druggists, 75c.

"BEECH NUT" HAMS.

The Imperial Packing Company, Canajoharie, N. Y., are a young concern, but already their business has extended far beyond the hopes or expectations of the most sanguine of their members.

They commenced business about a year ago, and already their trade reaches over a very wide space of the map of the United States The quality of the goods supplied is of such a high order as to command a second and permanent order. The "Beech Nut" hams and bacon put up by this company are really second to none in the market, either domestic or imported. The company pack all their green meats at the Union Stock Yards, Chicago, and are therefore able to secure the choicest cuts and know just when they are packed. Their bacon is neatly put up, and by being wrapped in grease proof paper, the greasy look of bacon differently wrapped is avoided.

BUFFALO LITHIA SPRINGS.—HOT SPRINGS.
TWIN REMEDIES IN
GOUT, RHEUMATIC GOUT AND RHEUMATISM.
WHAT THE HOT SPRINGS PHYSICIANS SAY:

Dr. Algernon S. Garnet, Surgeon (retired), U. S. Navy, Resident Physician, Hot Springs, Ark.:

"My experience in the use of BUFFALO LITHIA WATER is limited to the treatment of **Gout, Rheumatism** and that hybrid disease,. '**Rheumatic Gout**' (so called), which is in contradistinction to the **Rheumatoid Arthritis of Garrod.**

"I have had *excellent results* from this Water in these affections, *both in my own person and in the treatment of patients for whom I have prescribed it.* Of course, the remedial agent is its contained **Alkalies** and their solvent properties.

"Hence it is a **prophylactic,** *as well as a* **remedy in Nephritic Colic,** *and forming* **Calculi** *when due to a redundancy of* **Lithic Acid.**"

The Late Dr. Wm. F. Carrington, Resident Physician, Hot Springs, Ark., Surgeon (retired), U.S. Navy, Surgeon Confederate States Navy:

"BUFFALO LITHIA WATER, Spring No. 2, has signally demonstrated its remedial power in **Gout, Rheumatic Gout, Rheumatism, Uric Acid, Gravel** and other maladies dependent upon the **Uric Acid Diathesis.**

"*It not only eliminates from the blood the deleterious agent before it crystallizes, but* **dissolves** *it in the form of* **Calculi,** *at least to a size that renders its passage along the ureters and urethra comparatively easy.*"

Dr. T. B. Buchanan, Resident Physician, Hot Springs, Ark.:

"*Send me five cases* BUFFALO LITHIA WATER, Spring No. 2. I have made use of this Water for **Gout** *in my own person and prescribed it for patients similarly suffering, with the most decided beneficial results. I take pleasure in advising* **gouty** *patients to these Springs.*"

Dr. G. W. Lawrence, Resident Physician, Hot Springs, Ark.:

"I prescribe BUFFALO LITHIA WATER with great confidence, in all diseases of **Uric Acid Diathesis.** When traveling, it is my habit to use this Water as a guarantee for getting a pure water."

Dr. L. S. Ordway, Resident Physician, Hot Springs, Ark.:

"I have used BUFFALO LITHIA WATER Spring No. 2, very extensively and successfully in my practice, in cases of *Rheumatism of the Arthritic* form, especially when complicated with weak, inactive *Kidneys, with inclination to Bright's Disease.* I have also found it an efficient remedy in *Albuminuria of pregnancy.*"

DR. JOHN A. BLAYDES, Pres. HOT SPRINGS MEDICAL AND SURGICAL INSTITUTE, ARKANSAS. DR. R. O. BLAYDES, Sec'y.

THE STATEMENT OF DR. BLAYDES:

"We have made use of BUFFALO LITHIA WATER with patients of this institution in many obstinate cases of Gout, Rheumatic Gout and Rheumatism, with uniformly excellent results, and in diseases generally of Uric Acid Diathesis regard it as an invaluable remedy. Its action in this class of cases indicates certainly the possession of some extraordinary property."

WATER IN CASES OF ONE DOZEN HALF-GALLON BOTTLES, $5, F. O. B. HERE.
☞ *Descriptive Pamphlets Sent Free.* ☜

THOMAS F. GOODE, - - - Buffalo Lithia Springs, Va.

CANCER.

A NEW SANITARIUM FOR ITS TREATMENT.

Cancer is a generic name for a disease which very few physicians have had opportunity to study carefully. One reason for this lies in the curious fact that out of many thousands of cases coming under that specific appellation there are hardly two exactly alike. Another equally patent reason is that empirics and charlatans have for years preyed upon those who were afflicted with this disease; much so that regular physicians have hesitated to make the disease a special study fearing thereby to incur the risk of being considered quacks. At least, however, Drs. A. M. & C. H. Mason, two brothers, regular graduates of the Vermont Medical College at Burlington have had the courage of their conviction and have boldly undertaken the treatment of those afflicted with cancer. Many years experience has taught them that it is a fact that no two cases of cancer are exactly alike, that therefore the treatment must vary to suit the peculiarities of each case which must be separately and carefully studied. One thing they do agree on and will tell in advance, that is that they do not believe in any mechanical interference with a cancer, either with the knife, caustic, paste or plaster. They are convinced that cancer in its manifold forms is a constitutional disease and therefore must be treated constitutionally. Local applications will assist but must not be the main reliance. This being the case, they have found it necessary in order to treat cases intelligently and under their personal care and supervision to establish a sanitarium in a locality having natural advantages of pure air and water, besides being easy of access by rail. They have chosen Chatham, Columbia county, N. Y., at the intersection of the Boston & Albany railroad, Harlem division of the N. Y. Central & Hudson River railroad, Hudson & Berkshire, and Lebanon Valley railroads, a few miles from Albany and located in the Berkshire hills. Here they have erected a fine brick three-story hotel at the junction of three streets so that every room in the house is a front room. It is furnished newly throughout, and is lighted by electricity, having every modern improvement of a most comfortable hotel. On the first floor are the offices, parlors, and an elegant dining room—besides private consultation rooms. The upper floors are divided off in fifty bed chambers, while the basement is used for kitchen, store rooms and laboratory. The first and second stories have broad rooms and shady piazzas. One peculiarity about the house is that there is no appearance of hospital or illness about it, which can best be appreciated by anyone who has ever had the misfortune to be an inmate of one of those regular hospitals which are scented throughout and whose every cranny speaks and smells of the many ills humanity is heir to. Drs. Mason have been very successful in their specialty and consequently are over-run with business. They make it a conscientious point not to promise anything and to refuse to take a patient whom they cannot help. Many physicians all over the country consult them about cases they suspect to be cancerous, and this together with enquiries by letters from thousands of sufferers all over, entails a large amount of correspondence; to do which a competent staff of stenographers and typewriters are constantly kept busy. A telegraph station is in the house. Now in conclusion it is but fair to add that from a personal visit to this sanitarium, careful investigations of the methods employed and a candid interview with Doctor Mason, the editor of the AMERICAN ANALYST believes that many cases of this disease have been cured here, that many more have been relieved of pain and lives prolonged and that the rule of the institution is to deal fairly, conscientiously and honestly with all, at moderate prices.

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NEURO-KON.

Attention is called to the advertisement in another column, of "Neuro-kon," an alleged sure cure for neuralgia. We cannot pass upon the merits of the medicine before trying it, but it strikes us that the offer of "no cure, no pay" is entirely fair.

HORSFORD'S ACID PHOSPHATE

It imparts new energy to the brain, giving the feeling and sense of increased intellectual power.

Dr. A. M. Bilby, Mitchell, Dak., says: "I have used it in a number of cases of nervous debility, with very good results."

◆

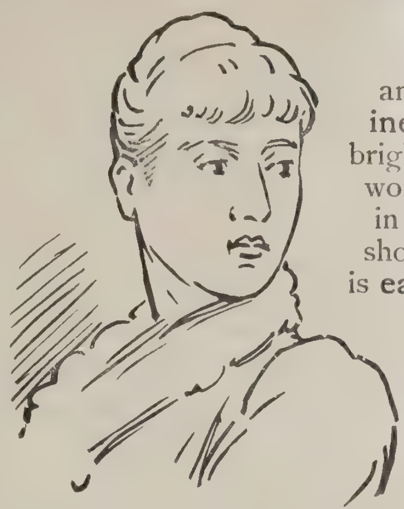
THE LINE OF LAKES.

The above name has been applied to the Wisconsin Central Lines, on account of the large number of lakes and summer resorts tributary to its lines. Among some of the well-known summer resorts are Fox Lake, Ill., Lake Villa, Ill., Waukesha, Mukwonago, Cedar Lake, Neenah, Waupaca, Fifield, Butternut and Ashland, Wis. These lakes, abound in numerous species of fish, such as black bass rock bass, pickerel, pike, perch, muskallonge, while sportsmen will find an abundance of game, such as duck, geese, quail, snipe, etc. In the grandeur of her scenery, the charming beauty of her rustic landscapes and the rare perfection of her summer climate, the State of Wisconsin is acknowledged to be without a peer in the Union. Her fame as a refreshing retreat for the overheated, careworn inhabitants of the great cities during the midsummer months, has extended as far southward as the Gulf of Mexico and eastward to the Atlantic.

Pamphlets giving valuable information can be obtained free upon application to G. R. Fitch, G. E. A., New York, N. Y., or Jas. C. Pond, General Passenger and Ticket Agent, Chicago, Ill.

◆

Ripans Tabules are of great value.



Look Around

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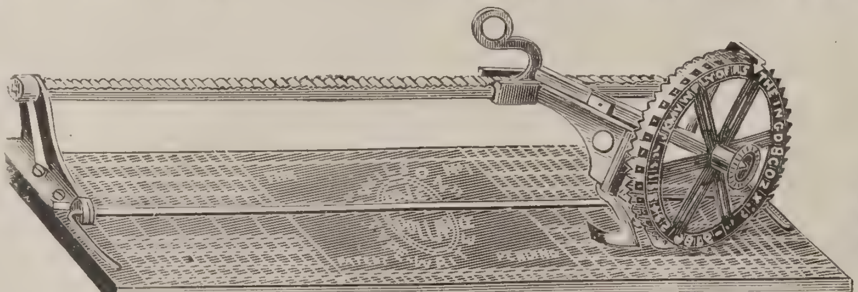

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"There were three crows sat on a tree,
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Instead of being black as night."
"Such foolish wishing," said his friends,
"In disappointment often ends;"
But now, forsooth, to make you white,
Will be an easy matter, quite.
We'll wash you well with some Gold Dust,
And, when you're white, we fondly trust
That while you wonder at the feat,
Your happiness will be complete."

* * * * * * * * * *

Behold him now as white as snow!
Wonder of wonders! saith the crow,
"If Gold Dust Powder makes black white,
'Twill surely all the world delight;
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Will find themselves henceforth well paid
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Will make whate'er is dingy bright."

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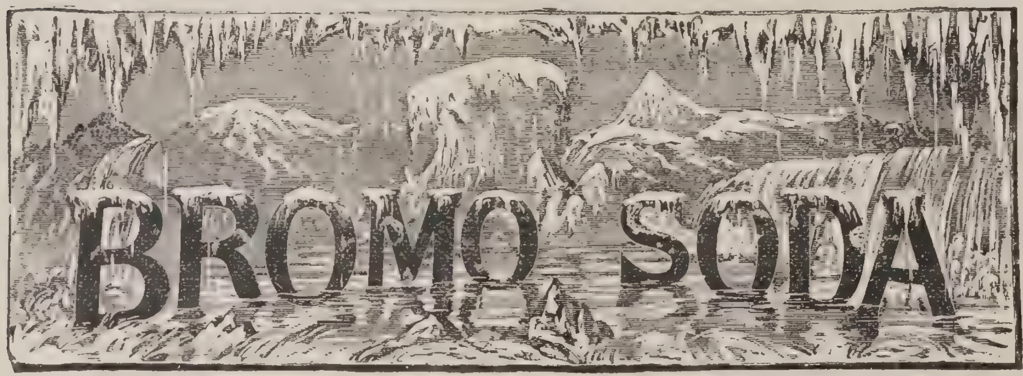

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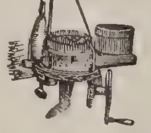

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OCTOBER 1, 1892.

CONTENTS.

Page
Acids of Fruits 300
Adulteration 299
Book Reviews 304
Boy's Essay on Cats 306
Cats 306
Cementation vs. Cremation 297
Cocoa Preparations 299
Cold Process of Preserving 300
Disinfectants, the Best 298
Dirty Bank Notes 298
Editorial 297
  The Sanitary Condition of Chicago—Robbing the Subscriber.
Funeral Reforms 301
Halfway to the Moon 303
Household 301
Household Poisons 301
Hygiene 297
Meat-Eating and Meat-Eaters 303
Medical 300
Milk Business 300
Miscellaneous 303
Real Scotch Dishes 301
"Sun" Cholera Cure 300
Tin Salts in Gingerbread 299
Training Common Cats 306
Warning to Public 300
Washing 302

THE SANITARY CONDITION OF CHICAGO AND THE WORLD'S FAIR.

Both Eastern and European journals are drawing attention to the alarming prevalence of typhoid fever in Chicago, resulting from the daily discharge of 40,000,000 gallons of diluted sewage into Lake Michigan, which also supplies the city with water drawn from a point in the lake about two miles from shore and directly in the path of the current from the river. Chicago, with a population three and a half times that of San Francisco, had more than four times the number of deaths last year from all causes, and nearly sixteen times the number of deaths from typhoid fever; in other words the death rate from typhoid in Chicago was four and four-fifths times that of San Francisco, which, as we all know, is a shamefully filthy city supplied with shamefully filthy water.

It has been charged that Chicago doctors did not know typhoid fever when they saw it, or rather that they saw it where it was not, and that the fearful mortality from this scourge in the "garden city of the lake" was due to a mistaken diagnosis; and we also notice of late that the number of deaths reported as caused by typhoid fever has fallen off considerably, though the rate is yet uncomfortably high. Perhaps some of the physicians have taken lessons in diagnosis from the World's Fair boomers.

Millions of people expect to visit Chicago next year, but trillions upon trillions of cholera microbes are on the march and have also their eyes set on Chicago, wherefore it behooves the citizens to see to it in time that the enemy can find neither food nor lodgings.

The *Journal of the American Medical Association*, of July 23, says, editorially:

"The near approach of the time when hundreds and thousands of people from all parts of the habitable world will visit this country and focus to this city, should force upon the municipal authorities of Chicago a realization of their responsibility in this direction and compel a much more vigorous effort than is apparently being put forth, to not only sweep, garnish and put in order every sewer, street and alley but to give the city an overplus of unpolluted water for every household purpose.

"In case the germs of cholera should reach this city, the conditions for a spread of the disease to the direst epidemic proportions are singularly favorable.

"That it should be necessary, month after month, to boil and filter every pint of water that is used for drinking purposes in a city of more than a million of inhabitants is a scandal of monumental proportions upon the city government.

"This condition of affairs is not only well known at home, but is now thoroughly noised abroad to the very great detriment of World's Fair interests.

"The men of conceptive minds, of enterprise and ability, are here and could speedily change most of the disparaging conditions to which we have directed attention. A diversion of thought from a contemplation of unparalleled enterprises, to the more homely one of preparing to give a cup of pure water to every stranger that visits the city, will soon do the work. We are patiently waiting for a manifestation of the workings of the minds of some men in this direction, and will be glad of an opportunity to tell the world through our pages that the conditions to foster an epidemic of cholera or any other enteric disease do not exist in the World's Fair City."

Chicago has had warnings enough and we hope she will heed them, for if she does not the shame and disgrace will react upon the whole country, although the direct loss will fall heaviest upon the city itself.

It is now well known abroad that Chicago is a pest-hole, and unless something is done mighty quick to improve matters, the expected millions at the World's Fair will fail to materialize, for, as the *Medical Record* puts it, "people can find other and more pleasant means of suicide nearer home."

◆

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Any newspaper which sells its space without being certain that the advertising space so sold is to be used only to advertise honest goods at fair prices is guilty of helping a thief rob its subscribers. The paper which, by reason of its large subscription list, has secured public confidence, should not barter away this confidence by allowing anyone to abuse the confidence of its subscribers by selling to them the privilege of robbing the public through its columns. The AMERICAN ANALYST only admits known advertisers, who have honest goods to offer, to its columns.

HYGIENIC.

CEMENTATION VERSUS CREMATION.

Cementation versus cremation is said to have been among the topics discussed by a party of visitors who recently inspected the Buffalo Crematory. The *Sunday News* reports the substance of a conversation on the subject, in part as follows: "I have an idea," said one, "which combines all the advantages claimed for cremation and which would also meet with universal favor among those who can never be induced to change their notions respecting interment of the dead. I would bury the dead in a case or mould of cement or some similar material, using coffins or not, as economy or personal preference might suggest. Coffins or caskets of wood or metal could be dispensed with. The undertaker who is called to prepare the body for burial would ascertain the size of the deceased and come, let us say, with a handsome metal case, which will serve as a mould. The lower half would be filled with cement, and the body, dressed merely in a shroud, would be placed in the cement and laid out, if desired, to be viewed as at ordinary funerals. A lid with a glass window directly over the head would enable the mourners to see the features of the dead On the morning of the funeral the remaining portion of the casket would be filled with cement and allowed to harden with the lower half. The hearse would convey the casket to the cemetery and there opened; the solid block of cement, of presentable contour, and as hard as rock, in which the remains are incased, would be taken out and deposited in a vault or in the earth. The moisture in the ground, and time, would harden this block still more. The name of the deceased, age and dates of birth and death may readily be carved in the cement before it is completely hardened, so that at any time the remains could easily be identified without further records. As to the advantages of cementation on sanitary grounds, I submit that they are superior to those of cremation. After death the cement casket is not removed. Cement is impermeable and impenetrable. The body, instead of decomposing, would dry up and wither in the cement encasement. No liquids would find their way out into the ground, and the horrible dreams of the imagination about putrid and decaying corpses of dear ones would forever be put at rest. Body-snatchers could do nothing with corpses packed in cement."

"Why didn't you present a paper upon this interesting subject before the convention?" asked a fellow-scientist when the speaker had finished.

"I am not quite done with experimenting upon the plan as yet," he replied, "but next year I will have a paper ready upon the subject of cementation. I have already made application for a patent upon the moulds and process of cementation as far as I have progressed with them."

DIRTY BANK-NOTES.

In a city in which the mortuary statistics show a large proportion of infectious diseases, every factor that enters into the dissemination of these diseases is of interest (New York *Medical Journal*). So Dr. E. Acosta and Dr. F. Grande Rossi have reported in the *Cronica medico quir urgica de la Habana* the results of their bacteriological analysis of the bank-notes of the Spanish bank of Havana in general circulation. It was found that circulation increased the weight of bank-notes, in consequence of their acquiring foreign matter. The author's bacteriological examinations showed in the notes in use for some time a considerable number of microbes, and in two notes they calculated there were 19,148 microbes. In the notes that were analyzed there existed a septic micro-organism that rapidly killed animals inoculated with it. Besides this, eight pathogenic species were encountered, including those of diphtheria, tuberculosis, etc. The author, therefore, concludes that bank-notes were a potent means of transmitting disease, and that their use by children was especially dangerous, because the Havanese children have the habit of carrying the notes in the mouth, and may thus swallow the germs of some mortal disease. We have been told that in olden times, during the prevalence of epidemic disease, creditors and vendors refused to receive money in their hands, all coins being dropped by the debtor or purchaser into a bucket of water. But they merely surmised that the "mechanism of exchange" might become the medium of infection. Now we know that it is so.

THE BEST DISINFECTANTS.

BY THOMAS J. KEENAN.

The question, "What is the best disinfectant?" is one which meets our eyes with more than ordinary frequency in turning over the yearly volumes of almost any journal of pharmacy; and generally the answer given is as vague as the nature of the question propounded. For since no single drug is capable of destroying infection in all its protean aspects, or of reaching the germs of disease, wherever located, it is safe to assume that no single drug or combination of drugs can lay claim to this superlative degree of excellence. The most that can be done is to describe those which are known to be active germ destroyers, and to refer to their manner of use. Among such, the most potent is heat, which may be applied in two forms—moist and dry.

I. Moist heat is par excellence the most reliable disinfectant known, and may be applied in many different ways for the purpose required. In the case of infected clothing, articles of wearing apparel, etc., the method in which specially constructed chambers containing the articles to be disinfected are filled with steam under high pressure, is considered superior to the action of steam without pressure or to simple immersion in water kept at the boiling point. The lethal temperature of moist heat for disease germs being about 230 deg. F., if we are to rely on water kept at the boiling point it will be easily understood how necessary it is to prolong such boiling in order to destroy the spores of any infectious organism present.

II. Dry heat is less powerful than moist heat, many organisms having been known so to resist a heat of 230 deg. F.; it is essential, therefore, in using this form of heat, to raise the temperature to at least 266 deg. F., at which temperature no micro-organism can exist.

III. Next in point of general efficiency to those forms of heat may be ranked sulphur dioxide, or sulphurous acid, which is best generated by burning sulphur, or the bisulphide of carbon, in a moist atmosphere.

Sulphur is largely employed by the Health Department of New York City; its rule being, after calculating the cubic contents by multiplying the height, length, and breadth of a given room together, to use this substance in the proportion of about 1 ounce of sulphur to every 20 cubic feet of air space. The apparatus employed is very simple, the sulphur being burned in a pan which is floated on water contained in a pail or in any convenient receptacle of suitable size, and for a period of at least two hours.

The sulphurous fumigation is most satisfactorily accomplished, however, by prolonging the time limit to at least eight hours, or otherwise by using the bisulphide of carbon for a similar length of time; but the use of this latter agent is not to be recommended to those who are unfamiliar with the handling of inflammable liquids, as, in addition to being a powerful poison, it is a liquid of a highly diffusive and inflammable character.

IV. *Chlorine.*—This agent is considered by many authorities to be a more certain disinfectant than sulphur dioxide; but the method of generating it being somewhat more complicated, it is not looked upon with favor nor used to the same extent. For the disinfection with this gas of rooms, closets, etc., all windows and doors should for the time be closed and every aperture stopped up. Then, the cubic space having been calculated, 1 ounce of a mixture composed of equal parts of sodium chloride and manganese dioxide, to which is subsequently added a fluidounce of a 50-per-cent solution of sulphuric acid in water, is taken for every 100 cubic feet of air space. On the addition of the sulphuric acid solution to this mixture chlorine gas is freely liberated, according to the following equation: $2NaCl + 2H_2SO_4 + MnO_2 = Na_2SO_4 + MnSO_4 + 2H_2O + 2Cl$. Any compound of this gas which contains it in loose combination is well adapted for ordinary household use as a deodorant and disinfectant.

The official calx chlorinata is a good example of this; when freshly prepared it contains about 33 per cent of available chlorine, which is rapidly parted with on simple exposure to the air. A solution of it in water, of the strength four ounces to the gallon, is recommended by the American Public Health Association in the disinfection of excreta.

Other preparations of this substance in frequent use are represented by Labarraque's solution and Javelle water; but the false sense of security engendered by the use of these and the chlorinated lime, when employed as deodorants, is to be carefully guarded against, their peculiar properties of neutralizing bad odors not always being a sufficient evidence of thorough disinfection.

V. *Phenol Compounds.*—Of these the most beneficial, and the one in commonest use, is the mixture of carbolic and cresylic acids known as crude carbolic acid. It is a reddish-brown liquid of a strong tarry odor and but slightly soluble in water, its relative insolubility varying with the amount of cresylic acid present. This mixture is considered the most desirable deodorant and disinfectant for use in public institutions, such as almshouses, asylums, prisons, etc., where economy is a factor in the management. The pure crystalline carbolic acid has a more extended application, being used in the form of a saturated aqueous solution, both as an antiseptic and disinfectant. As a disinfectant it is largely employed in spraying the walls, furniture, etc., of rooms, besides being employed in weaker solution as a body wash.

During the limited outbreak of smallpox which occurred in New York City a few years ago, chloride of zinc dissolved in water was successfully employed in the disinfection of bedclothing and wearing apparel. At the same time solutions of crude commercial sulphate of iron were mainly relied upon for the disinfection of privies, basements, etc.; the cheapness of this article and its powerful properties of arresting the growth of organisms, along with the freedom from dangers of poisoning attending its use, all rendering it a substance of great value, the last mentioned property in particular making it of special value in case of its use in the presence of irresponsible persons.

The health department of the city of New York has contributed much toward a proper understanding of the uses of disinfectants, and the following summary of the results recently determined by this department, as showing the relative value of the below-named germicidal chemicals, may be relied upon as accurate and conclusive. The germ-destroying power of the several agents was tested on the ordinary bacteria of putrefaction. They ranked in effectiveness in the following order

Corrosive sublimate, 64 grains to the gallon.
Carbolic acid, 5 per cent solution.
Bromide, 1 pound to 200 gallons.
Permanganate of potash, 17¾ ounces to 200 gallons.
Chloride of lime, 4 ounces to the gallon.
Sulphate of iron, 1½ pounds to the gallon.
Sulphate of zinc, 4 ounces to the gallon.
Common salt, 2 ounces to the gallon.

This paper would not be complete without some reference to the semi-official deodorant solutions of the National Formulary, preparations which I have seen most successfully employed in the correcting of foul odors arising from insufficient drainage and similar causes.

The solutions are two in number and are named respectively *Liquor Zinci et Ferri compositus* and *Liquor Zinci et Aluminii compositus.* The former is intended for common domestic use where the presence of iron is not objectionable, and the latter for use in the deodorizing and disinfecting of articles of clothing composed of woven fabric, etc.—*American Druggist.*

◆

Ill-Smelling Cellars.—If a cellar has a damp smell and cannot be thoroughly ventilated, a few trays of charcoal set around on the floor, shelves, and ledges will make the air pure and sweet. If a large basketful of charcoal be placed in a damp cellar where milk is kept, there will be no danger of it becoming tainted.

◆

A Mystery Solved.—A mysterious ringing of electric bells in a Swiss house was traced to a large spider, which had one foot on the bell wire and another on an electric light wire.

◆

Life-Line Rockets.—One of the most important tests lately held for firing life-line rockets by life-saving crews to disabled vessels was made at Craney Island, Va., under the supervision of Lieut.-Commander W. T. Burwell. The test was made in a twenty-mile wind. Four rockets were tested. Each weighed 150 lbs., and was fired with the following results: First, 1,200 feet; second, 1,552; third, 1,750; fourth, 2,218. The time of flight of the first two was seven seconds each; third, eight seconds; fourth, ten seconds.

◆

A syndicate of cattlemen has a perfect right to water its stock.—*Texas Siftings.*

ADULTERATION.

TIN SALT IN GINGERBREAD.

The attention of the Minister of the Interior in France has recently been called to the considerable amount of protochloride of tin now used by manufacturers in making gingerbread, the consumption of which in France is considerable. It appears that by the use of this chemical common meal and other ingredients may be used, while the gingerbread will still have the appearance of being of excellent quality. This adulteration has only been going on for some twelve months, but has rapidly developed. The proportion of protochloride of tin used is by no means insignificant. It varies from 500 grammes to 5 kilos. of tin salt to 100 kilos. of flour, producing 200 kilos. of gingerbread. Experiments have shown the chemical in question to be very poisonous. At the last meeting of the Council of Public Hygiene, M. A. Riche presented a report of analyses made at the Paris Municipal Laboratory, the most adulterated sample of the bread in question containing 1 per cent of tin. Even if the addition of tin were innocuous, he said he would strongly recommend its prohibition, because it allowed inferior substances to be used in preparing an article of food which is principally consumed by children. Mr. Riche drew attention to a case of poisoning near Rouen, reported by Dr. Guersant. A servant had carelessly put some chloride of tin in soup instead of ordinary salt. The disagreeable taste prevented some of the family from eating the soup, but those who took only a small quantity showed distinct evidence of poisoning.

COCOA PREPARATIONS AND THEIR ADULTERATIONS.

A REVIEW OF THE GOVERNMENT CHEMIST'S REPORT.

[Continued.]

The samples which were analyzed by the U. S. Department of Agriculture were all purchased in the city of Washington without any intimation being given to the dealer as to the purpose for which they were bought. As is provided by the law on this subject, a full description of these samples is given. In many cases the addition of material which would otherwise be considered an adulteration is duly made known on the label. In other cases no intimation is made and the sample is regarded as pure. The number of cocoa preparations offered to American consumers is growing so great in extent that a satisfactory classification of them is hardly possible. The best idea of the materials which were purchased in open market, can be obtained by a perusal of the labels which were found upon the packages. The following is a list of the labels with the name of the manufacturer, comprising all the samples subjected to analysis (leaving out those which we have already commented upon):

1. Maillard's Vanilla Chocolate by H. Maillard, New York.

2. Caracas Chocolate, vanilla flavor, by H. Maillard, New York.

3. Double Vanilla Chocolate by H. Maillard, New York.

4. Triple Vanilla Chocolate by H. Maillard, New York.

5. Chocolate-Menier (fine vanilla quality), Menier, Noisel, France.

6. Peerless Vanilla Chocolate by Hawley & Hoops, New York.

7. La India Vanilla Primera Chocolate by Fullie & Co., Caracas, Venezuela.

8. Chocolate a la Vanille. (No name given on package.)

9. Zoete Vanille Chocolate by Bensdorf & Co., Amersterdam, Holland.

10. Maillard's Sweet Chocolate by H. Maillard, New York.

11. Panama Sweet Chocolate by H. Maillard, New York.

12. Fry's Diamond Sweet Chocolate by J. S. Fry & Sons, Bristol and London, England.

13. Fry's Sweet Chocolate by J. S. Fry & Sons, Bristol and London, England.

14. Rockwood & Co.'s Sweet Chocolate by Rockwood & Co., New York.

15. German Sweet Chocolate by S. German, Dorchester, Mass.

16. Mexican Sweet Chocolate. (No name.)

17. Paris Sweet Chocolate by H O. Wilbur & Sons, Philadelphia, Pa.

18. Vienna Sweet Chocolate by Runkel Bros., New York.

19. French Sweet Chocolate. (No name.)

20. Gerhard Schmitz's Sweet Spiced Zealand Chocolate by Royal Cocoa and Chocolate Company, Philadelphia, Pa.

21. Crown Sweet Chocolate. (No name.)

22. Broadway Sweet Chocolate by H. O. Wilbur & Sons, Philadelphia, Pa.

23. Wilbur's Vanilla Sweet Clover Chocolate by H. O. Wilbur & Sons, Philadelphia, Pa.

24. Rockwood & Co.'s Dutch Sweet Chocolate by Rockwood & Co., New York.

27. Breakfast Cocoa by H. O. Wilbur & Sons, Philadelphia, Pa. "Wilbur's cocoa is manufactured from the choicest cocoa bean, with the excess of oil removed."

28. Van Houten's Pure Soluble Cocoa by C. J. Van Houten & Zoon, Weesp, Holland. "Van Houten's Pure Soluble Cocoa is not raw cocoa, but a greatly improved and highly concentrated cocoa, in which the proportion of natural fat is properly adjusted, and in which important constituents are rendered more soluble and useful, while the flavor and aroma are most highly developed."

29. London Cocoa, sole agents, H. O. Wilbur & Sons, Philadelphia, Pa. "Caracas and other cocoas scientifically blended with sugar and arrowroot. It is guaranteed free from other substances, and being deprived of all other indigestible matter, by a process peculiar to this manufactory, is a perfect nutrient for the sick, aged and children."

30. Rowntree's Select Extract of Cocoa by H. I. Rowntree & Co., York, England.

32. Maillard's Breakfast Cocoa by H. Maillard, New York.

33 Maillard's Dietetic Cocoa by H. Maillard, New York. "This cocoa is made on the homeopathic principle by extracting a large percentage of the oil or butter, and is especially adapted for the use of invalids and persons whose condition requires such nourishment as will not interfere with digestion."

34. Fry's Cocoa Extract by J. S. Fry & Sons, Bristol and London, England. "We guarantee the genuineness of this pure and delicious cocoa, which consists of choice cocoa only, from which the superfluous oil has been extracted."

35. Fry's Malted Cocoa by J. S. Fry & Sons, Bristol and London, England. "A combination of Fry's pure cocoa extract (cocoa deprived of the superfluous oil) with Allen & Hanbury's extract of malt."

36. Rockwood & Co.'s Breakfast Cocoa by Rockwood & Co., New York.

37. Rockwood & Co.'s Table Cocoa by Rockwood & Co., New York.

39. Blooker's Dutch Cocoa by S. & C. Blooker, Amsterdam, Holland. "For a long time, however, our greatest chemists have in vain endeavored to separate the indigestible properties of the cocoa bean from its nutritious parts. It remains for us after years of careful research to invent a practical method of effecting the separation on a large scale."

40. Prepared Cocoa by James Epps & Co., London, England. "Cocoa contains a bland oil, which is pre-eminent as a vitalizing substance, and to remove which oil in any degree is to lessen its value as a force producer. It is to preserve this oil, when using cocoa as a beverage, that it becomes necessary that the imported seeds from Trinidad and Caracas should be prepared, and scientifically; for to render the oil soluble and easy of digestion, it needs to be combined with just so much loaf sugar and West India arrowroot as will effect its perfect incorporation. In the preparation of the cocoa contained in this tin we guarantee that no other ingredients than those mentioned are used."

41. Bensdorp's Pure Soluble Cocoa by Bensdorp & Co., Amsterdam, Holland.

42. Brook's Prepared Cocoa by C. D. Brooks, Dedham, Mass.

43. Huyler's Cocoa by Huyler, New York.

45. Henry Maillard's Broma by H. Maillard, New York. "Broma is chiefly composed of the nutritious principle derived from the cocoa bean, by eliminating the butyrous matter."

47. Wilbur's Cocoa-theta by H. O. Wilbur & Sons, Philadelphia, Pa. "Invigorating, anti-dyspeptic, powdered chocolate, warranted strictly pure . . . affording all the nutritive properties of the cocoa bean, while eliminating the troublesome qualities."

48. Schweitzer's Cocoatina by H. Schweitzer & Co., London, England. "Anti-dyspeptic cocoa or chocolate powder. This unique preparation is the highest class of soluble cocoa or chocolate, being absolutely 'all cocoa,' with the excess of fat extracted."

40. Alkethrepta by Smiths Manufacturing Company, New York. "A pure preparation of chocolate . . . . retaining the highly nutritious natural butter of the cocoa. which is so treated as not to derange the stomach of the most delicate."

50. Racahout des Arabes by M. G. De Langrenier, Paris, France.

51. Hawley & Hoop's Breakfast Cocoa by Hawley & Hoops, New York.

52. "Windmill Brand." Imported and guaranteed by E. D. Lowe, Boston, Mass. "De Jong's pure soluble cocoa will dissolve in cold water."

A perusal of the above labels will show that manufacturers follow their own sweet will in regard to the nature of the label which they employ. Not only are the constituents of the preparation mentioned in many cases, but glowing descriptions of their physiological effects are also appended. In other cases, the simple name of the manufacturer is supposed to be a guaranty of good qualities, and no further description is added. Some of the statements made in the labels are quite surprising from a chemical and physiological point of view, especially in that case where it is stated that broma is chiefly composed of the nutritious principle derived from the cocoa bean, by eliminating the butyrous matter. This probably means the extraction of the fat as a whole, as the chemist would not be able to recommend any other way by which the butyrous fat could be separated from the rest of them.

In other preparations it is noticed that the digestive act is arranged for before the cocoa is introduced into the stomach, showing the highest consideration on the part of the manufacturer, for the conservation of the digestive activity of the consumer of his wares.

A WARNING TO THE PUBLIC.

THE OHIO FRUIT COMPANY'S CALIFORNIA COLD PROCESS FOR PRESERVING FRUITS, VEGETABLES AND LIQUIDS

It seems that a quiet but active canvass is being made in this State and probably elsewhere, under the above caption; and a circular is headed by a notice that "anyone printing or selling directions not obtained from us will be prosecuted to the full extent of the law." "Compound Extract of Salyx" is the sonorous name under which the alleged new nostrum is advertised.

The name of this "compound extract" is incautiously suggestive of salicylic acid. An examination of the sample fruit distributed by the canvassers accordingly shows, in the liquid around the fruit, one-third of 1 per cent of salicylic acid; which of course is well known to preserve fruit, as well as other vegetable and animal matter, but is better adapted to the preparation of show specimens than to preserve for human consumption. Doubtless there are persons who may for some time take such doses of the well known preservative with impunity; there are others with whom its use would in a short time create very serious disorders of the digestion; and there are those whose digestion is stopped point blank, when such "preserves" are eaten.

Any one is at liberty to take his choice as to which of the above classes he considers himself as belonging, and may take his dose of medicine with his dessert if he chooses. But should anyone desire to do so it is quite unnecessary for him to pay the "Ohio Fruit Company" at the rate of eight dollars a pound for what he can get at retail for one dollar and a half. Nor need he be alarmed about the fruit company's threat of prosecution. The use of salicylic acid (elsewhere forbidden by sanitary regulations) is guarded by no patent and never has been; that of "coffee C" sugar prescribed by the company certainly is not. All are therefore at liberty to sweeten their fruit according to taste, and to spice it with the antiseptic acid, without asking leave of anybody.

E. W. HILGARD.

University Experiment Station,
Berkeley, Cal., June 17, 1892.

THE MILK BUSINESS.

ROBBERY OF PRODUCERS AND CONSUMERS BY SKIM-MILK ADULTERATIONS.

The *Rural New Yorker* pays its respects to the New York Milk Exchange in an article from which we make an extract.

All through the milk-producing regions members of the Exchange have established milk-receiving stations, where they buy milk of the producers, paying for it generally a half-cent per quart less than the net price in New York. In other words, they meet in New York 13 per cent of solids and 4 or more per cent of fat. See how easy it is for those unscrupulous men to adulterate the milk by adding skimmed milk to pure. Look at these figures:

30 quarts milk, solids 13	390
10 quarts skimmed milk, solids 10	100
40 quarts, total solids	490
1 quart, solids	12½

This shows that in the case of milk showing 13 per cent of solids and 4 per cent of fat, they could safely mix ten quarts of skimmed milk with thirty quarts of pure, and the mixture would stand the legal test. It is perfectly safe to say that the milk received at the Exchange creameries for eleven months in the year is rich enough to allow them to put five quarts of skimmed milk into every forty-quart can without subjecting themselves to the penalties of the law. We append a few extracts from the fourth annual report of the State Dairy Commissioner of this State:

> Some creamery men are no doubt practicing the adulteration of milk by adding a certain percentage of skim-milk to each can shipped to market, they having discovered that they can do this without reducing the milk below the lowest standard required by law.
>
> One creamery man had the audacity to come to me and make the following statement: That he was selling his milk at wholesale and retail in Brooklyn; that he thought some of the farmers delivering their milk at his creamery watered it; that he feared that the milk would be brought below the standard by reason of the supposed watering and the addition by himself, as he acknowledged, of five quarts of skim-milk to every thirty-five of pure milk, and that he was fearful lest the dairy commissioner or the board of health should prosecute him. In fine, he wanted to be protected against the fraud of the farmers in order to consummate his own fraud on his customers.
>
> I find that the detection of the above offense is most difficult. Being committed behind closed doors it is not easy to detect it.
>
> Another creamery man delivered his milk at a railroad depot. The agent noticed that the cans were not full and called the attention of the party delivering the milk to the fact. He answered that he had forgotten to add the skim-milk, and returned to the creamery and brought what was presumably skim-milk to the depot and filled the cans.

The far-reaching effects of this persistent adulteration are apparent when we look into the figures. A careful estimate puts the amount of milk shipped to New York from Exchange creameries at 5,000 cans daily. If we assume that these contain, on an average, only five quarts of skimmed milk apiece, it will be seen that the aggregate amounts to 25,000 quarts or 625 cans daily—a quantity larger than the terrible "surplus" about which so much has been said and which has been such a potent factor in beating down the price in the hands of the Exchange. The evil is a monstrous one.

The milk law needs amending. The proportion of fat solids is too small and should be changed. The law to-day makes any farmer who sells his milk to a butter or cheese factory, and who adds water or subtracts any cream, guilty of a misdemeanor, and that is as it should be. Now let us have the same medicine for the dealer, and let us be empowered to call the employes in creameries as witnesses. If it can be proved that a creamery man has added skimmed milk to his other milk and offered the mixture for sale, let it be a misdemeanor, no matter what analysis of it shows. If it is good law for the farmer, it is good law for the Exchange man.

MEDICAL.

THE ACIDS OF FRUITS.

THEIR VALUE IN FOOD—THE INCREASE OF SUGAR IN RIPE FRUITS.

Many vegetable and fruit products are esteemed for their pleasant or refreshing taste, anti-scorbutic properties rather than for any nutritive value which they possess. Fruits of that character are especially valuable as additions to our daily diet, on account of the potash salts and mild vegetable acids they contribute to the blood. The grateful acid of the rhubarb stalk arises from the malic acid and binoxalate of potash which it contains. The acidity of the lemon, orange and other species of the genus citrus is caused by the abundance of citric acid which their juices contain; our common New England fruits contain principally malic acid; the flavor of asparagus comes from aspartic acid, found also in the root of the marshmallow; and that of the cucumber from a peculiar poisonous ingredient, called fungin, which is found in many species of fungi, and is the cause of the cucumber being objectionable to some persons.

It will be observed that rhubarb is the only product which contains binoxalate of potash in conjunction with an acid. It is this ingredient which renders rhubarb so wholesome at the early commencement of the summer.

The following table, compiled from some analyses of Prof. Berard, shows the percentage average chemical composition of five unripe fruits and of eight ripe fruits, comprising apples, pears, gooseberries, grapes, plums, cherries, apricots, and peaches:

	UNRIPE.	RIPE.
Water	85.7	78.7
Albuminoids	0.7	0.6
Sugar	4.0	12.9
Vegetable acids	1.5	1.3
Pectose and gum	4.3	3.7
Cellulose, etc	3.8	2.8

The data thus given show that there is a considerable decrease in the watery particles of fruit as it approaches its full ripe character, resulting in a difference of 7 per cent, while the sugary constituents decrease during maturation in a corresponding degree, rising from an average of 4 to nearly 13 per cent. This shows how much more valuable is ripe fruit for cider and vinegar-making as the sugar is the substance of most value.

The pleasant and agreeable taste of fruit direct from the tree is undoubtedly in part due to the freshness and briskness of the vegetable acids contained in the fruit, which, when so gathered and eaten, have not time to change into any other substance.

Pectose forms the substance known as vegetable jelly, and it is to this constituent of fruits that jams owe their firmness. Cellulose is the fibrous part of fruits, and it is in this portion that we should find the largest proportion of mineral salts, potash, etc.—*N. E. Farmer.*

"THE SUN" CHOLERA CURE.

Take equal parts of tincture of opium, tincture of rhubarb, tincture of cayenne, spirits of camphor, essence of peppermint.

Mix well together. Dose: fifteen to thirty drops in water; to be repeated in fifteen or twenty minutes if necessary.

This is the original formula for the *Sun* cholera Cure. It was given to the *Sun* in the "cholera year" 1849 by George W. Busteed, then and now a practicing pharmacist in this city. It was published daily in the *Sun* during the summer of that year. It was published at intervals for several years, and again daily during the "cholera years" 1855 and 1866, and has been printed in the *Sun* probably 1,000 times since it first appeared.

The *Sun* cholera cure has been adopted into the United States Pharmacopœia, and is a medicine approved and valued by every medical man in the country.—*N. Y. Sun.*

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EMPIRICISM.—According to *Popular Science News*, a lieutenant in command of one of Her Majesty's gunboats deemed the responsibility of the charge of the medicine chest too much for him. Immediately she was off soundings the gallant officer mustered all hands and divided the contents of the chest equally, so that each had "his whack and na mair." There is another naval yarn in this connection well worth mentioning. A man-of-war doctor, whose name is unfortunately lost to posterity, had a simple method of locating a man's ailment and alleviating it (save the mark) by drastic and infallible remedies. He would tie a piece of tape around the waist of the complaining mariner and command him to declare whether the pain existed above or below the tape. If above, an emetic, and if below a dose of salts followed as a matter of course.

Thought She Had Hydrophobia.—"Pa, has our new ma got hydrophobia?"

"No, child. What made you think of that?"

"Why, I just heard her say that she got awfully bitten the day she married you."

Good Advice —Miss Plumpleigh (choking)—Oh, Mr. Dudekin, I—I really think I've swallowed a dreadful fly. What shall I do?

Dudekin—Deah girl, better swallow some fly-papah.

In a Temperance Town.—First Police Commissioner—What is the charge against McGobb?

Second Police Commissioner—Entering a drug store while on duty.

A METAMORPHOSIS.

When in her bathing suit she trod
The ocean's sandy bed,
Young Cupid, without smile or nod,
Just turned his back and fled.

Imitation the Sincerest Flattery —"Imitation is the sincerest flattery, isn't it?" said Mamie to Maud.

"I believe that's what they say."

"That's why I'm going to give Charley an imitation Russian leather pocketbook.

Freckle Banisher.—Chloride of ammonium, 1 oz.; hydrochloric acid, c. p., 2 drs.; glycerin, 4 oz.; elder flower water, q. s. to make ½ gal. Mix and filter. It can be applied with a sponge or a soft linen rag at pleasure.

Horseradish.—A London medical man says: "Be careful in your dealings with horseradish. It irritates the stomach far more than spice, and an over-dose will bring on an unpleasant sensation for days."

Water for Babes.—A physician of New York Nursery and Child's Hospital believes, from his practice, that infants generally, whether brought up at the breast or artificially, are not supplied with sufficient water, the fluid portion of their food being quickly taken up, leaving the solid too thick to be easily digested. In warm, dry weather, healthy babies will take water every hour with advantage, and their frequent fretfulness and rise of temperature is often directly due to their not having it. A free supply of water, and restricting the frequency of nursing, has been found at the nursery to be a most effectual check in cases of incipient fever, a diminished rate of mortality and marked reduction in the number of gastric and intestinal complaints being attributed to this cause. In teeth cutting, the water softens the gums, and frequently stops the fretting and restlessness universal in children at this period.

Irish Veracity.—The Irish are so proverbially truthful that there is veracity to be found even in their lying, as the following will amply prove: In an Irish daily there recently appeared this advertisement: "Wanted—A gentleman to undertake the sale of a patent medicine; the advertiser guarantees it will be profitable to the undertaker." Would that all patent medicine advertisers were equally truthful.

How to Poultice the Ear.—Poulticing an ear may seem to be a simple operation, but there is nevertheless a right and a wrong way of doing it, and it appears that the wrong way is the one usually adopted. At least, so says Dr. Alfred H. Buck of New York, in an article on aural therapeutics in the March number of the new *International Medical Magazine*. Dr. Buck says that while heat is one of the best remedies in painful inflammations of the middle ear, and the poultice is one of the best methods of applying heat, as usually put on the poultice has little effect. What should be done, he says, is first to fill the external auditory canal with lukewarm water, the head resting on the unaffected side upon the pillow. Then a large flaxseed poultice is applied over the ear as hot as it can be borne. The column of water is thus kept warm and acts as a conductor of heat between the poultice and the inflamed surface

Sound Sleeper.—The longest cataleptic sleep known to modern science has been attracting attention in Germany. The latest report states that the man—a miner of Silesia—has been unconscious for four and a half months, with no unnatural appearance except absolute rigidity of the limbs. During this time the patient's hair has grown, but his beard has remained stationary. Food is given by tube.

Wired Pipes.—Pipes of cement in which wire netting is imbedded are now being made in Berlin. The wire netting increases the strength of the pipes and adapts them for service as water conduits.

FUNERAL REFORMS.

The *Lancet* states that the fashion of standing bareheaded at funerals seems to be losing ground. The death of the young Duke of Clarence and of many others of only a little less prominence than he in England, caused by funeral exposures in midwinter, has attracted attention, "and, what is better, has kept it there," to the need of new customs regarding the interment of the dead. The editorial writer in the *Lancet* further remarks that, if the reform takes good root and grows, he hopes that its influence will not be limited to cold weather, for it is no less injurious to many men to be compelled to expose their bared heads to the broiling sun in summer than for certain others to throw down the gauntlet to frost and snow and storm. In the English climate, and that of our own northern sections, there are not many months in the course of the year when it is safe for the male citizen to go about bareheaded, and it is none too early for the agitation of some sanitary protection to men's heads at funerals all the year through. We remember to have seen lately a narration to the effect that a lady, then recently widowed, sent a written request, on her own behalf and on that of her sons, to certain friends invited to the funeral of her late husband, that they would not remove their head-covering during the open-air part of the funeral observances. This was midwinter no doubt, but the lady's example might well be followed at any time of the year.—*N. Y. Medical Journal.*

Housekeeper—"Call these apples Rhode Island greenings, do you? Seems to me they are awfully small." Dealer—"Yes, mum. Rhode Island is a small state, mum.—*New York Weekly.*

HOUSEHOLD.

HOUSEHOLD POISONS.

While not wishing to alarm housewives unnecessarily and cause them to fear a "foe in every bush," I wish to call attention to a few sources of domestic poisoning.

What are the colors of your papers in the best room and sleeping rooms? In spite of the fact that manufacturers disclaim the use of arsenic in the colors used, the fact remains that many greens and Pompeiian reds react to the tests for this mischievous and death-dealing drug.

Would you like to know how to determine whether arsenic is present or not? Add some household ammonia to a piece of the paper and if a blue color results, it means arsenic. Beware of brightly colored artificial flowers in hat or bonnet as well as gayly painted toys which the children are so ready to place in their mouths and suck from them their pigments.

Do you take care that all the water in the lead pipes is drawn off in the morning before you fill the teakettle or any other utensil used in the preparation of breakfast? A failure to do this has caused several cases of lead poisoning with the subsequent ill health and suffering.

We trust none of you use the youth-renewing hair dye filled with lead and causing many cases of obscure paralysis.

Did it ever occur to you that many of these gaudily-colored candies which you give your children, especially the yellows, may be colored with chromate of lead, and the child's continued ill health be ascribed to "worms"?

Are you always careful never to allow canned goods to remain in the can and ferment after they are opened, and do you know that an acid is formed by this fermentation, which can dissolve large amounts of the lead in the solder used in sealing the can? A fairly good test is to smear the yelk of a hard-boiled egg by any substance supposed to contain lead well concentrated by boiling, and get the blackening due to the action of the lead on the sulphur of the egg. You would not imagine that an innocent-looking brass kettle might be the source of poisoning, yet such is the fact, if any acid substance such as vinegar or pickles is allowed to stand in it over night. If you should wish to prove the presence of copper in the liquid, allow a steel needle, brightly polished, to remain suspended in it a few minutes, and its presence will be shown by a violet coating on the needle.

SOME REAL SCOTCH DISHES.

BY FRANCES B. JAMES.

Have you ever had the privilege of being a guest in a Scotch household? It is said the Scotch are to be found in every quarter of the globe; that when the North Pole is reached, a Scotchman will be found sitting on it with a glass of whiskey in his hand; so, without having visited the "Land o' Cakes," one may know something of Scotch hospitality. But you may have heard of canny Scots who cannot be cheated, and perhaps know the tale of a Jew who ventured to set up in business in Scotland, but found that he could not prosper, as the Scotchmen were smarter than he. From all that one is told of "close-fisted" Scots, one might fancy that it would not be delightful to be the guest in a Scotch house, unless one remembered that that race are as noted for their hospitality as for their closeness. A Scotchman, of all people, likes a good dinner, and he wants it well served. I can tell of a cosy little home, where everything is as dainty and neat as possible —no superfluous show or ostentation of any kind. My friends are not wealthy, but comfortably off. With the warmth and cordiality of our reception and the delicious dinner we could not fail to be delighted. Never shall I forget the delicate flavor of the wild duck that our host had shot, and the nice way in which it was served. It was placed on the table in a dainty dish, the master scored its breast with two or three strokes of his knife and the maid poured over it, from a brilliantly scoured copper saucepan, a very spicy gravy.

My friend is famous for her "make" of shortbread, but I did not mean to trespass on her kindness by asking her to give me some to take home, so one day when her son was out shopping with us I asked to be directed to a "sweetie shop" where I could get the best shortbread.

"Why didn't you tell mother you wanted some? You can't buy anything as good as hers."

Under protest he took me to McKilliam's, where they sell shortbread packed in tins ready for transportation. But, my friend, after all, insisted that I should take some of her shortbread with me, and brought to the station, when I was leaving, two packets of white paper tied up with pink ribbons, and with pure white flowers slipped into the bows; one of these contained *pate de foie gras* sandwiches and the other the famous shortbread. She gave me her recipe, but I doubt if such good cakes can be made outside of Scotland.

SHORTBREAD.—Three-quarters of a pound of flour, quarter of a pound of ground rice, half a pound of butter, quarter of a pound of sugar, and a pinch of salt. Rub the butter and flour well together, then add the sugar, salt, and rice. Knead it thoroughly with the hand and cut into cakes. Bake in a slow oven, say twenty minutes, but the cook must judge by the heat of the oven and the appearance of the cakes. These cakes are usually long and narrow, about the size of a soda cracker cut across the middle, but they should be rather thicker, like cookies, and about as sweet.

SCONES.—One pound of flour, two ounces of butter, one dessert-spoonful of baking powder, one salt-spoonful of salt and half a pint of milk. Mix the flour and baking powder together, then rub in the butter. Add the salt and milk. Roll out, cut into rounds about half an inch thick. Bake on a girdle (Scotch for griddle) for fifteen to twenty minutes.

OAT CAKES.—Three-fourths of a pound of fine oatmeal, one-half teacupful of cold water, one dessert-spoonful of bacon gravy (fat left in the pan after frying bacon), one-half teaspoonful of carbonate of soda, and a pinch of salt. Mix two handfuls of the meal with the soda, salt and water, and add the bacon gravy. Stir all together quickly with the hand. Turn out on a board on which you have put a couple of handfuls of meal. Knead together, adding more meal by degrees; do not make it too stiff. Work it flat between the palms of the hands. Roll out lightly, cut in four pieces and rub each piece on both sides with meal. Bake on a girdle, and when cooked on one side place on a toaster before the fire.

There is a story of the Queen's visit to a cottage kitchen, where an old woman was making a haggis, and Her Majesty became interested in its composition. "How do you make a haggis, my good woman?" "Oh, you just take a bag and put the pluck intil't, and oatmeal intil't, and"—— "But what is 'intil't'?" said the Queen. "Why, you put oatmeal intil't, pluck intil't, and"—— "But what is 'intil't'?" repeated the Queen. "Haven't I been a telling you what's intil't?" said the old woman, getting angry with her unknown visitor, beginning again to detail its contents. But when the Queen again asked her question, some member of her suite, grasping the situation, advanced and explained that "intil't" was not a vegetable, but was only Scotch for "into it," so the mystery of "intil't" was solved. Here is a description of a haggis and what's intil't:

HAGGIS.—Half a pound of minced beef suet, two teacups full of oatmeal, four parboiled onions, one pint of pot-liquor, one teaspoon full of salt, half a teaspoon full of pepper, the heart, liver and lights (in Scotland called the pluck) of a sheep, and its stomach bag. Clean the stomach bag in cold water, then put it in hot water, scrape it well. Allow it to lie in cold water over night, with a little salt. Wash the heart, liver and lights, place them in a saucepan, allowing the windpipe to hang over the edge; pour on enough boiling water to cover them, add a teaspoon full of salt, and boil for two hours. Take them out of the pan and when cold cut off the windpipe. Grate a quarter of the liver, mince up the heart and lights with the suet and onions. Toast the dry oatmeal in a dish in the oven till it is a golden brown color. Add the oatmeal, pepper and salt to the mince, and stir in a pint of the liquor in which the heart, etc., were boiled. Mix thoroughly. Fill the bag more than half full of the mince and sew up the hole. Put the haggis in a pot of boiling water and boil for three hours, occasionally pricking the bag to prevent it from bursting. To be served hot.

BROSE is a dish that one seldom sees, but it is very common among the poorer classes; it seems like a thick soup as may be judged by the following receipts:

PEASE BROSE.—About two ounces of ground pease, a pinch of salt and one and one-half gills of boiling water. Put the ground pease and salt into a bowl, stir in gradually the boiling water. Boil this mixture in a saucepan for five minutes. Serve hot.

FAT BROSE.—Two ounces of oatmeal, one and a half ounces of dripping, two gills of boiling water, a pinch of salt, a pinch of pepper, and one onion mixed and boiled. Put the oatmeal and dripping into a bowl, stir in gradually the boiling water. Add the salt, pepper and onion Boil for ten minutes.

Here are two receipts for preparing fish, which doubtless taste better when the fish are bought of the quaintly-dressed fish-wives one sees in the Northern markets, whose short skirts, white caps, "plaiddies" and oddly shaped baskets, hung on their backs, all make one think of the characters of Sir Walter Scott's novels:

CRAPPIT HEADS.—Three haddocks' heads, two haddocks' roes, and two haddocks' livers, one-quarter of a pound of oatmeal, one dessert-spoon full of breadcrumbs (browned), the same of chopped parsley, two parboiled onions (minced), one teacup full of cold water (or the same quantity of milk), one-quarter of a teaspoon full of pepper, and one teaspoon full of salt. Brown the oatmeal by placing it in a dish in the oven, stirring it occasionally to keep it from burning. Cleanse the heads, wipe them dry, and carefully remove the eyes. Mince the roes, livers, parsley and onions, adding the pepper and salt. Make them into a stiff paste with the water (or milk). Stuff the heads with this mixture and sew them up. Melt the dripping and brush the heads over with it and sprinkle them with the breadcrumbs. Bake for an hour and a half, or if preferred, boil for three-quarters of an hour.

The above is not a very aristocratic dish, but that lordly dish called finnon haddocks, given below, is delicious.

FINNON HADDOCK.—One finnon haddock, one-half ounce of butter, one pint of milk, one-quarter of a teaspoon full of flour. Wipe the haddock with a damp cloth, cut it in quarters, roll the pieces in the flour. Place then in a stewpan, with the milk and butter. Bring to the boil very slowly, and allow it to simmer gently for five minutes. Serve with the sauce in which it was cooked.—*The Housewife.*

WASHING.

AN EXPERT'S ADVICE.

The editor of the London *Laundry Journal* has written a book on "Laundry Management" from which the following extract is taken:

On the necessity of soaking linen, he says: "The soaking of linen is one of the indisputable preliminaries to successful washing. If dirty linen is placed in a copper, with or without soap or soda, and boiled, the effect is literally disastrous, both to the appearance and the healthiness of the clothes; for in this case the dirt is rather hardened and driven into the tissues of the fabric than driven out, and the very presence of soap and soda helps toward such undesirable ends.

"The linen, which has been already sorted into various bundles, should be taken into the wash house from the receiving and marking room, and placed in large tubs or coppers of cold or barely tepid soaking liquor. This liquor varies greatly. It may consist merely of water in which a little good soap has been lathered, or in which soda or borax has been dissolved. We, for our part, prefer borax, and disapprove of soap, at this early stage. Other people prefer to use javel water or lessire.

"Javel water is especially affected by washerwomen on the continent, it is merely a strong soda lye. Take four pounds of ordinary washing soda and dissolve it in a gallon of soft water; boil this for ten minutes, then add one pound of chloride of lime. This precious preparation should be allowed to cool before using; it should be kept well corked in a jar, and we earnestly advise readers never to uncork it.

"Probably ever since textile fabrics first came into fashion the cleansing power of potash salts have been recognized and utilized. In one way or another potash has entered into the manufacture of detergent preparations for very many centuries. The earliest soaps that are known to us were merely a crude mixture of mutton fat and the burnt ashes of wood and seaweeds. The Roman soaps were all soft soaps, owing to their employing only potash salts, which prevent the saponified oils or fats from solidifying. But for a long time potash salts were only made use of in a very primitive and uncertain fashion, the salts being collected by pouring boiling water over wood ashes. To this day in Italy, southern France and some parts of Switzerland and Germany, potash salts are there collected for the periodical wash.

"The ordinary way of proceeding is to pack the soiled linen in a tub provided with a hole in the bottom. A series of coarse clothes are placed on the top of the linen, and then a quantity of wood ashes are heaped up, boiling water being poured over them, and allowed to filter through the mass of clothes and escape by the hole at the bottom. This method is most effectual, and if adopted after a thorough hand-scrubbing instead of boiling, the linen comes out a beautiful color. But this process must not be used for fine linens, as the potash salts are very strong.

"Many people collect the lessire water and use it as a soaking liquor. On the continent liquor is sold in liquid form by the bucket; it is always to be obtained at the public washhouses. It is also to be had in a solid form—that is, the potash salts and other earthy deposits are collected from ordinary lessire water and either sold as a powder or in solid cases. The use of lessire water is decidedly beneficial, but it requires much care in manipulation.

[To be continued.]

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Rugby Cake.—4 lbs. flour, 2½ lbs. sugar, 2½ lbs. margarine, 1½ lbs. currants, 1½ lbs. sultanas, ¾ oz. volatile salts, 12 eggs, ¾ pt. milk, lemon flavoring.

Beat the margarine and sugar to a smooth cream, adding the eggs two at a time while beating. Drop in the flavoring powder and dissolve the salts in the milk, and stir it in the batter. Sift the flour and work it well in, then add the fruits. Bake in paper-lined tins in a moderate oven.

◆

Cambridge Seed Cake.—3 lbs. flour, 1½ lbs. sugar, 1¼ lbs. margarine, 1½ oz. caraway seeds, 1½ lbs. baking powder, 6 eggs, 1 pt. milk, almond flavoring.

Sift the baking powder with the flour, rub in the margarine, mix in the sugar, and make a bay. Whip the eggs to a light froth, beat it into the milk, and turn all into the bay. Drop in the flavoring and seeds, and make a soft dough. Work in the seeds thoroughly, fill the mixture into well-buttered oblong tins, and bake in a moderate oven.

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Madeira Cake.—8 lbs. flour, 3½ lbs. sugar, 3½ lbs. margarine, 1½ oz. volatile salts, 24 eggs, 1 qt. milk, lemon flavoring.

Beat the margarine and sugar to a light cream, adding the eggs a few at a time while beating. Work in the flavoring, powder and dissolve the salts in the milk, and also stir this in. Spread the mixture level on a paper-lined edged baking tin, dust the surface with fine sugar, and bake in a moderate oven.

◆

Cooking by Electricity.—Cooking by electricity seems almost to have reached the practical stage, for we learn that at the dinner of the Electrical Section of the Whitehall Club at the Crystal Palace, on the 25th ult., a considerable portion of the feast was prepared by the new process of electrical cooking now being introduced by Messrs. Crompton & Co., in conjunction with the General Electric Company. A few days later a number of influential gentlemen assembled in the Royal Hotel, South Shields, on the invitation of Mr. Farquhar M. Laing, to witness experiments in cooking by electricity. Mr. James Patterson and Mr. Horace Angus, of Newcastle and District Electric Lighting Company, conducted the experiments. The utensils used for cooking were two pans, each about the size of a saucer, and with flat tops and small rims.

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Dangerous Stoves.—The German public has been warned against certain forms of stoves, from whose use several cases of poisoning by carbonic oxide are known to have resulted.

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No, my dear girl, a catboat is not necessarily made of pussy willow—*Boston Transcript.*

◆

Metals.—Fifty-one metals are now known to exist. Four hundred years ago only seven were known.

MISCELLANEOUS.

MEAT-EATING AND MEAT-EATERS.

SOME ERRONEOUS IDEAS CORRECTED.

It is painful, but not altogether surprising, to find a reputable journal arguing that the meat-eating man is the best-fed man, and that the more animal food we consume the better off we are. "The fact that the American is the typical meat-eater of the world," it is stated, "is a proof that he is, per capita, the richest man in the world, the best able to buy the best food." And the foreigner who thinks that Americans eat too much meat is therefore set down as an envious ignoramus. The fallacy in this line of reasoning is obvious, although, as we have intimated, comparatively few persons are quick to recognize it. The usual idea in this country is that a hearty meal means meat, and that those who enjoy this luxury not oftener than once a day are in a parlous state indeed. But this involves a complete misconception of the nature and properties of food. The healthiest man is not necessarily he who lives on beef and bread and abjures what he contemptuously calls "French kickshaws." At this season of the year, in particular, such a diet has its dangers, and it would be missionary work of the highest value to disseminate by precept and example popular instruction in the highly important science of gastronomy. We may sneer at foreigners all we like, but we shall never be truly civilized until we have assimilated some of their customs as regards eating and drinking.

It would doubtless be too much to say that the vegetarians have the right of it or that the banquet recently described by a correspondent should be the beau ideal of the gourmet. But perhaps these amiable and maligned enthusiasts are doing a useful service in calling our attention to the excellence and the satisfying nature of vegetable food. It is true that during a large part of the year, in a climate like ours, animal food is desirable and even necessary. Our tables would seem bare, indeed, if the substantial roast, the juicy steak, and the appetizing chop were banished from them altogether. But the man who, on a broiling hot day, sits down to a feast of beefsteak and onions, or ham and eggs, or liver and bacon, is guilty of a crime against taste and against nature. Fruit and vegetables grow at this time of year for our especial behoof, and fish and lobsters are good because now is the time to enjoy them. The very fact that animal food excels in heat-producing properties indicates its fitness for cold weather and its unfitness for hot weather. There is a notion among us that dishes which are dainty and appetizing are not nourishing. How and where it arose we do not pretend to say. But no one who is intimate with and appreciates the culinary skill of the French will subscribe to it for a moment. It must be borne in mind that even the most persistent meat-eater is not content with meat alone, but frequently develops an abnormal fondness for pie and other articles of diet not the most healthful, whereas, if he would take his animal food in the diluted form of soup, and add to that fish, vegetables and fruit, he would be a healthier and happier person when the dog-star is in the ascendant.

Perhaps the undue preponderance of meat-eaters among us is in part due to our limited knowledge of the functions and possibilities of cookery. We have, it is true, been making some advances in the right direction, although "raised biscuit" and the frying-pan together maintain the national disease of dyspepsia, and the menu of the country hotel is still largely suggestive of lard and salt pork. As a rule, however, we love the coarser kinds of food not wisely but too well. Even a man of philosophic mind like Emerson persisted in eating pie for breakfast and a doughnut with the second cup of coffee is still an invariable formula in many highly intellectual households. Of course, one reason for this lies in the unsatisfactory condition of our domestic service. Cooking—that is, real cooking—is a fine art, and you cannot attain distinction in art without artists. Even when ladies try their hands at cooking they aim at expertness in lemon pie and chocolate cake rather than in salads and omelettes; a tendency which we fear that the cooking schools have done little to overcome. Of course, there is such a thing as an instinctive and inherent love of meat at all seasons; but it is quite likely that the mistaken belief that anyone can cook a chop, and the equally mistaken belief that there is something mean and shabby in not having a huge roast upon the dinner table, have had much to do in creating meat-eaters by habit rather than by conviction. What we need, then, most of all, is to have our gastronomic horizon widened—to appreciate the advance made by the human intellect in cookery in almost every country in the world except our own. Let us, at all events, have no more bragging over our culinary inferiority.—*Exchange.*

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HALF WAY TO THE MOON.

The various governments of the world own together 880 cables, having a total length of 14,480 miles and containing 21,560 miles of conductors. The French Government, which takes the lead as to length of cables, has 3,460 miles in fifty-four cables. As to number, the Norwegian Government comes first with 225 cables, having a total length of 248 miles. Finally, as to the length of conductors, the English Government comes first with 5,468 miles of conductors, divided among 115 cables, having a total length of 1,588 miles. Private companies to the number of twenty-eight own 288 cables, having a length of 126,864 miles and containing 127,632 miles of conductors. The French companies, only two in number, the Compagnie Francaise du Telegraphe de Paris a New York, and the Societe Francaise des Telegraphes Sous-Marins, have eighteen cables, with a total length of 7,249 nautical miles. The most important of the private companies is the Eastern Telegraph Company which operates seventy-five cables, with a total length of 25,347 miles.

The total number of cables in the world is 1,168, with a total length of 140,344 miles and 149,193 miles of conductors. This is not sufficient to reach to the moon, but would extend more than half way there.

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Use of Warts.—On every horse will be found, on the inside of each foreleg, a dry, gray wart about the size of a silver dollar, apparently of no possible use. When the weary, overtaxed animal sweating at every pore and covered with foam can reach down and rub with his wet nose this always dry, hard substance, he is instantly refreshed with an odor like geranium.

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The Longest Railroad.—The construction of the world's longest railroad is progressing rapidly along the river valleys and across the steppes of Siberia. The western extremity of the road is the mining town of Miask, on the eastern side of the Ural range, and its eastern terminus is at Vladibestok, on the Sea of Japan, making a total length of 4,785 miles.

THE WORLD'S WOE.

Each succeeding day the telegraphed reports of the cholera's advance become more and more alarming. The pestilence is no longer away on the other side of the globe. While it stayed there it interested our people no more, generally, than if it had been confined to the margins of Schiaparelli's canals on Mars—except perhaps as evoking a certain amount of vague sympathy for the sufferers. But recently it has made its appearance in Paris—which is practically at our doors. It is quite true that some of the Parisian physicians, optimistic gentlemen who do not wish the public to be alarmed, affirm the type of the malady displayed there, thus far, as being so mild it only deserves to be called "cholerine." But it is epidemic. Knots people up with cramps, turns them blue and kills them—all of which would seem to demonstrate it cholera enough for all practical purposes. Let them call it what they will; while it is still only gaining a foothold, it is nothing less than the advance guard of the fearful pest that has been, and still is, decimating the populations of the East; that has been shown to be steadily advancing westward and already threatens us. How long does anyone suppose it will be, after the cholera begins to rage in Paris, before it reaches this country? Experience has proved conclusively that the channels of commerce are avenues for the spread of epidemics. In the middle ages, and earlier, before steam was utilized to facilitate travel and traffic, pestilences it was observed "traveled at about the speed a man might go," except where sailing ships carried them more swiftly from port to port. But now, a man can travel around the globe in eighty days. Quarantine regulations, if rigidly enforced, may check the malady when it presents itself at our gates, but we cannot venture to hope they will altogether exclude it. With a fleet of steam ships bringing home thousands of American pleasure seekers and globe trotters, frightened out of Europe by the death in the air, and hordes of Europeans fleeing from the dread infection; carrying also vast quantities of textile fabrics and other goods well adapted for transmission of the germs of the disease-producing bacilli, it is not to be supposed that we can long escape our share of the world's woe.

Each epidemic is an accentuation of the increasing struggle for "survival of the fittest," and the basis of determination as to who are "the fittest" is solely and entirely a physical one. "The weakest must go to the wall." Of those attacked by cholera, it may be with reasonable certainty affirmed that such as have impoverished or impure blood, consequently enfeebled vital organs and necessarily lowered vitality will not survive. Of course, there may be exceptions, here and there, but they will deserve to be regarded as miracles, if they occur. And, when the germs are once set afloat in our atmosphere no one is safe from the contagion. It is therefore a wise precaution for every one to adopt, under the existent circumstances, to go through a preventive course of medicine for the attainment of the best possible physical condition. That which can, with most certainty of efficiency be recommended is Ayer's Sarsaparilla. It is a compound of the best blood alteratives known in medical science: Honduras sarsaparilla, yellow dock, stillingia and other powerful ingredients, in proportions which have been ascertained as most agreeable in action and effective in results. So potent is this medicine that it eradicates from the system even the most deeply-rooted chronic and hereditary ailments and those who put themselves in proper condition with its aid may rest assured they will stand the best chance for survival if the cholera comes among us.

BOOK REVIEWS.

The International Medical Annual and Practitioner's Index for 1892. Edited by P. W. Williams, M. D., Secretary of Staff, assisted by a corps of thirty-eight collaborators—European and American—specialists of their several departments. 600 octavo pages. Illustrated. $2.75. E. B. Treat, publisher, 5 Cooper Union, New York.

The tenth yearly issue of this valuable one-volume reference work was received several months ago, but this notice was mislaid till now. It richly deserves and perpetuates the enviable reputation which its predecessors have made, for selection of material, accuracy of statement and great usefulness. The corps of department editors in number and ability surpass that of last year. Its numerous illustrations—many of which are in colors—make the "Annual" more than ever welcome to the profession, as providing, at a reasonable outlay, the handiest and best résumé of medical progress yet offered.

Part I comprises the new remedies, together with a review of the therapeutic progress of the year.

Part II is devoted to special articles on diagnosis; the first on deformities of the hand, and their diagnostic value in nerve lesions; the second on the character of the sputum as an aid to diagnosis.

Part III, comprising the major portion of the

BUFFALO LITHIA SPRINGS.—HOT SPRINGS.

TWIN REMEDIES IN

GOUT, RHEUMATIC GOUT AND RHEUMATISM.

WHAT THE HOT SPRINGS PHYSICIANS SAY:

Dr. Algernon S. Garnet, Surgeon (retired), U. S. Navy, Resident Physician, Hot Springs, Ark.:

"My experience in the use of Buffalo Lithia Water is limited to the treatment of **Gout, Rheumatism** and that hybrid disease, **'Rheumatic Gout'** (so called), which is in contradistinction to the **Rheumatoid Arthritis of Garrod.**

"I have had *excellent results* from this Water in these affections, *both in my own person and in the treatment of patients for whom I have prescribed it.* Of course, the remedial agent is its contained **Alkalies** and their solvent properties.

"Hence it is a **prophylactic,** *as well as a* **remedy in Nephritic Colic,** *and forming* **Calculi** *when due to a redundancy of* **Lithic Acid.**"

The Late Dr. Wm. F. Carrington, Resident Physician, Hot Springs, Ark., Surgeon (retired), U.S. Navy, Surgeon Confederate States Navy:

"Buffalo Lithia Water, Spring No. 2, has signally demonstrated its remedial power in **Gout, Rheumatic Gout, Rheumatism, Uric Acid, Gravel** and other maladies dependent upon the **Uric Acid Diathesis.**

"*It not only eliminates from the blood the deleterious agent before it crystallizes, but* **dissolves** *it in the form of* **Calculi,** *at least to a size that renders its passage along the ureters and urethra comparatively easy.*"

Dr. T. B. Buchanan, Resident Physician, Hot Springs, Ark.:

"*Send me five cases* Buffalo Lithia Water, Spring No. 2. I have made use of this Water for **Gout** *in my own person and prescribed it for patients similarly suffering, with the most decided beneficial results. I take pleasure in advising* **gouty** *patients to these Springs.*"

Dr. G. W. Lawrence, Resident Physician, Hot Springs, Ark.:

"I prescribe Buffalo Lithia Water with great confidence, in all diseases of **Uric Acid Diathesis.** When traveling, it is my habit to use this Water as a guarantee for getting a pure water."

Dr. L. S. Ordway, Resident Physician, Hot Springs, Ark.:

"I have used Buffalo Lithia Water Spring No. 2, very extensively and successfully in my practice, in cases of *Rheumatism of the Arthritic* form, especially when complicated with weak, inactive *Kidneys, with inclination to Bright's Disease.* I have also found it an efficient remedy in *Albuminuria of pregnancy.*"

DR. JOHN A. BLAYDES, Pres. HOT SPRINGS MEDICAL AND SURGICAL INSTITUTE, ARKANSAS. DR. R. O. BLAYDES, Sec'y.

THE STATEMENT OF DR. BLAYDES:

"We have made use of BUFFALO LITHIA WATER with patients of this institution in many obstinate cases of Gout, Rheumatic Gout and Rheumatism, with uniformly excellent results, and in diseases generally of Uric Acid Diathesis regard it as an invaluable remedy. Its action in this class of cases indicates certainly the possession of some extraordinary property."

WATER IN CASES OF ONE DOZEN HALF-GALLON BOTTLES, $5, F. O. B. HERE.

☞ *Descriptive Pamphlets Sent Free.* ☜

THOMAS F. GOODE, - - - Buffalo Lithia Springs, Va.

book, is given to the consideration of new treatment; and is a retrospect of the year's work, with numerous original articles by eminent authorities.

The fourth—and last part—is made up of miscellaneous articles, such as Recent Improvements in Sanitation; Concerning Climatology and Hygiene; Alcoholic Inebriety, and the Results of Asylum Treatment; Improvements in Pharmacy; Books of the Year, etc.

The arrangement of the work is alphabetical, and with its complete index, makes it a reference book of rare worth.

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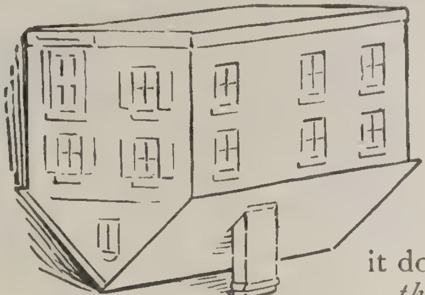

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TRAINING COMMON CATS.

THEY ARE "STAR PERFORMERS."—HOW THEY ARE TAUGHT AND WHAT THEY CAN DO.

The ordinary cat of commerce, the purely domestic product of the streets, is not generally regarded as being a creature of striking promise, so far as his or her possibilities in the way of civilization are considered. In fact, to the careless observer, whose mind has not been trained to grapple with abstract questions, the cat of New York City would appear as a rule to have been created only for the purpose of furnishing to the funny man of the press a welcome object for ridicule, to be, with the assistance of the property boot-jack, transformed into a joke. But since Barnum & Bailey's show has come to town the possibilities of the cat, the ordinary, scraggy, baleful-eyed, wicked and dishonest street cat, have been extended so greatly as to open to the view of the critical mind a vista of unbounded promise for the animal.

There are now twenty-two cats in the show, all plain, common, every-day cats, and the story of how they came to rise from their humble beginning to the rank of star performers in the greatest show on earth may best be told by giving some few fact about their trainer who exhibits them in the middle ring every day.

Henry Wilten, or Professor Welton, as his name appears on the programme, is a German, having been born in Berlin in 1859. To him, as to most of the trainers in the show, the business of training animals comes naturally. For 150 years before his birth his ancestors had been engaged in handling and breaking wild animals, particularly tigers and lions, and other large animals of the cat tribe. He inherited the confidence and that other peculiar quality which has no name, but which makes some men the natural conquerors of beasts, and at the age of sixteen years he exhibited five lions which he had trained himself. This show was held in Berlin in the Walhalla, then one of the large halls there, and it attracted immense crowds. About five years ago he started for America with four lions and two panthers which he had trained, but he had the misfortune to lose two of the lions on the way, and as the performance had been arranged for the six animals together the other beasts were almost useless to him. He had neither the money nor the time to buy and train other lions, so he sold those which he still had in Buffalo and started a restaurant in that town.

Whether it was that the Buffalo man does not eat so much as he drinks, or whether Wilten knew better how to tame the lion than he did Buffalo's appetite, does not appear. But what does appear is Wilten, shortly afterwards, without lions or panthers, without a restaurant, without a dollar and also without any prospects. Walking along the streets one night in the jovial mood of those who had no financial problems to vex them, he spied a poor, miserable-looking, abject specimen of a gray cat. Now to a trainer of big cats, a cat upon the gutter's brim was no common feline to him, but it was something more. So he took the animal home. That cat is the same one that now delights children in the show twice a day by his remarkable feats. He soon found that he had a soul above mice, and now Pasha, as he has been named, has become a cat of cats, a Tommy of great price. Pasha is the cat who jumps through the two hoops of fire and through the drum. The latter feat was the one most difficult to teach him, and Pasha still looks on the drum with suspicion. He doesn't know where he will land when he breaks through the paper drumheads, and that disquieting uncertainty weighs on his proud Castilian heart. But to those who know the nature of animals of the cat tribe, and particularly the fear they entertain of fire, the leap through the blazing hoops will remain the most wonderful. It required an incredible amount of patience, and also that peculiar influence of the trainer, to teach the cat this trick. The trainer began by making him leap through rings the size of a trundling hoop, and gradually decreasing the diameter until he got down to the present small hoops, which are just large enough for the animal's body to pass.

Wilten now has twenty-two cats, but Pasha still is his favorite, and while the others have to stay in the Madison Square Garden over night, Pasha goes home with his master and sleeps in his room. He can do many tricks besides those which so far have been shown. He can jump eighteen feet for instance, and when the leaping board is placed in the ring he runs up on it as soon as the cage is opened.

When Wilten found Pasha so able and brilliant he decided to try again and at last he had a collection of forty-two cats, which he exhibited throughout the country. Last year he took them to Mexico, and there the climate killed twenty of them. In exchange for these he brought back only one little spiteful red devil of a Mexican Greaser cat, which does not show signs of much ambition, and unlike Barkis, is most "unwillin'." Her health is poor, also, and she is too delicate to train. The same trouble prevents the training of Angora and Maltese cats, although these two breeds are the most intelligent and easy to teach. Hardy animals being required, most of the cats are the common tiger cats. They do well enough, however, as any one will acknowledge, after seeing old Tom walk on his fore feet, Leonta ride on the tricycle, or Lady and Leonta on the see-saw, while Flora, a sweet little white thing with blue eyes, stands in the middle. It was hard to teach Flora that. Cats do not like to be restrained, but wish to wander around in their own free way.

Paddy and John L., who spar in the two-foot ring, really do get angry when they spar, and they fight squarer than some of the "amachoors" and professional human pugilists.

◆

The average small boy thinks he could smash the glass trust.—*Boston Post.*

A BOY'S ESSAY ON CATS.

A small boy in one of the Detroit schools, recently handed in this composition on cats: Cats have foar legs and nine lives. Why they are five legs short I do not kno at this time. I gess I can find out tho when I die. I think cats wood be a gould deel funnyer if they had nine legs and five lives, don't you? Cats have tales whitch they rap round thare feat when they set down so as to hold them together. I kno a bob-taled cat that is ashamed to set down in public a tall. I gess it is afrade its feat will skatter. Thare are Tom cats and Puss cats, whitch the Tom cat is more massive and has a more sounding voise, in the midnight darkly when all elts is still. Cats cries like babies sometime, but you can not giv them parrygorick to quiet thare nervus sistems like you can babies. We hav a baby at our house that I gess has drinked about foar quarts of parrygorick and every nite it cries just the saim for more. I gess that baby must hav the parrygorick habbit. Young cats are very frisky and they will play all day because they don't have no skool to go to. I gess I would like to be a young cat till I was growed up to be a man. Cats eat milk and mice regular and the canary for dezert. Cats are very clean animals, but I never thought it was very clean to spit on their hands and wash thare faces in the manner in which they do. I gess I have wrote all I kno about cats.

P. S.—Cats has lectrisity in thare backs and they can blo up thare tales as big as a fli brush when they are froshus.—*Detroit Free Press.*

◆

Rams Horn Blows.—Small evils hatch quickly. The way to get good is to do good. Pride's next door neighbor is shame. Love speaks the mother tongue of everybody. Darkness cannot put out a light. All it can do is to make it brighter. The gold handle on an umbrella is not admired when it is raining hard. If the devil couldn't find any good people for stool pigeons, his trap would stay empty. There are some people who think the music never amounts to much except when they play first fiddle. If everybody's children were as good as their neighbors think they ought to be the sun would never set.

◆

Submarine Wealth.—The black metallic sand covering the bottom of the bay at San Blas, Argentine Republic, proves to be very rich in silver.

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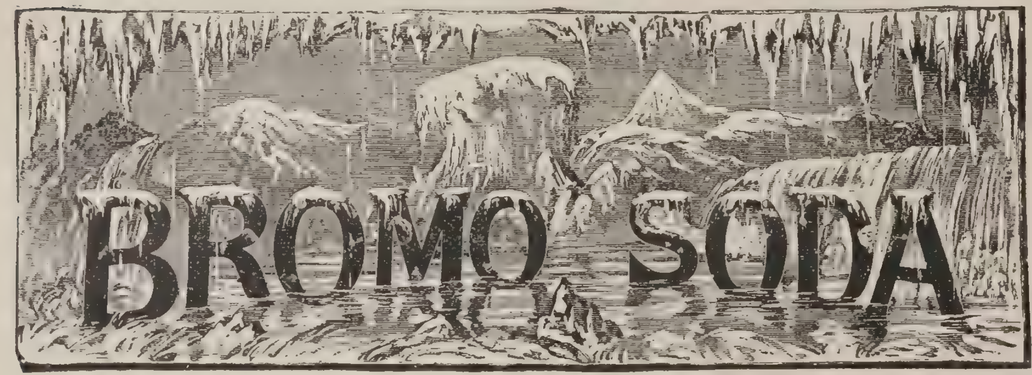

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CONTENTS.

Page
Adulterated Spices 313
Adulteration 312
Antidote for Poisons 310
As Seen by Newspaper Reporters. 312
Book Reviews 316
Cleaning a Water Filter 312
Cocoa Preparations and Their Adulterations 312
Editorial 309
It Tickles—The Discovery of America.
Effects of Tobacco 313
Healing by Milk 311
Household 311
Hydrometer 314
Hygienic 313
Manna IV
Man's Eating 314
Medical 310
Miscellaneous 314
Neuralgia of the Toe 310
Preserving the Eyesight 311
Side Dishes, Relishes, Etc 311
Tobacco, its Effects 313
Tomatoes and Cancer 310
Tonics 310
Washing (continued) 311
What Flies Fastest IV

IT TICKLES.

The Houston (Tex.) *Daily Post* is very kind. No doubt many of our readers keenly enjoy the variety and instructiveness of the various articles the AMERICAN ANALYST provides for them, but they are compelled to confine their praise to letter-writing and recommending the journal to their friends. In this way the expression of the good opinion of our readers tends to encourage and help us. Our contemporaries, judging us from the technical standpoint of experts, materially add to our encouragement by such pleasant and tickling comment as the following taken from the Houston *Daily Post:*

No meed of praise is too much to bestow upon the AMERICAN ANALYST, which is untiring in its missionary work of exposing adulterations in food and the many dangers which ignorant and unsuspecting humanity constantly elbows as it passes along. The last installment of the September number contains a sound and sensible chapter on "Food Investigations," another on "What to do in Emergency Cases," "Cocoa Preparations and their Adulterations," "Aromatic Disinfectants,' and many valuable suggestions thrown in by way of spice.

THE DISCOVERY OF AMERICA.

We are about to celebrate the discovery of America. It is highly proper that as a people we should appreciate the fact that we have something to be thankful for, that such a glorious country was discovered. So far so good—but when for some inexplicable reason we find a tendency to celebrate a lie it causes us to halt. No one who has followed up the literature of the day can be ignorant of the fact that Columbus, if indeed that was the name of the mythical individual whose claims to its discovery are now so industriously pushed, never as much as set foot on this continent, never knew of its discovery .The evidence is that the land occupied by what are now the United States was discovered by Leif Erickson. Those of our readers who are interested in studying up this subject will find much valuable matter in a book lately published by John B. and Marie A. Shipley, entitled the English Rediscovery and the Colonization of America. The authors trace the discovery of America from its earliest beginnings, in a series of chapters embracing the Norse Discovery, a depiction of the motives and results of the voyages of Columbus, and the actual discovery of North America by John and Sebastian Cabot, showing how these various events were mutually inter-related, and how the last named led to the existence of the present United States of America. The New York *Tribune* says:

"In this volume the Shipleys consider the position taken by the champions of Columbus and take the bull fairly by the horns. Instead of admitting the force of the staple argument to the effect that Columbus is entitled to the honor of the discovery, because his achievement was followed by settlement, and led to the establishment of the United States, they deny the accuracy of the facts alleged; maintain that the navigation of Columbus cannot, save by the most forced and unwarrantable methods, be connected with what follows; and assert boldly that he had nothing to do with the discovery of America in any true sense. . . As the Shipleys contend, moreover, it is all but certain that Leif Erickson landed on the main continent, whereas it is not at all certain, but extremely problematical whether Columbus ever saw, much less set foot on, the continent of America. The probability is that he did not get nearer than the Bahamas."

An answer by the authors to a criticism of the book throws considerable light on our subject, we therefore quote from it:

On page 1 of the book we say: "Columbus never saw, much less stood upon, the shores of the continent of North America. In no sense was he the discoverer of that great country which is known by the name of the United States of America. His marauding and slave-hunting expeditions were confined to the islands and the adjacent coasts of South and Central America. The very situation of the first land he saw is doubtful. It is known that it was one of the Bahamas, but which one, is still a question." We have also in some of our writings stated that Columbus's first landing was probably his farthest north point; all his later voyages were more to the Southward; and even the most northern point mentioned by "A. P. C." is well within the limits of Central America, so that our statements are fully confirmed, that Columbus never saw North America, and that his nearest approach to that (the northern) continent was when he first landed on the Bahamas. It will be noticed that we adopt the division, customary in America, and therefore presumably correct, of the New World into three continents, North, Central and South America. We do not in the least degree deny the discovery of the region of the Orinoco, or the coasting voyage to Honduras, but even in the discovery of the continent as a whole we claim that he was anticipated by the discoveries of the Cabots in North America, namely, Newfoundland, Labrador and the Canadian and United States coast as far South as Chesapeake Bay. We trace a decided line of connection between these discoveries and the earlier Icelandic one of Leif Erikson, which was in all probability well-known both to the Cabots and to Columbus.

What is quite certain is that it was on the discovery by Cabot that the colonization of the United States was founded. As Lindsay says (History of Merchant Shipping), "Sebastian Cabot is entitled to the honor of having been the first to discover that portion of those lands now constituting the United States of America; and to Great Britain, more than to any other country, is due the fame of the thorough exploration and first colonization of a world destined to surpass in wealth and power the greatest of modern nations." This is no mere modern view of the course of events; we know from contemporary sources that it was to the discoveries of Cabot that the Elizabethan explorers, Gilbert, Raleigh and others turned their eyes, knowing that, as Hakluyt said in a letter to Raleigh, the Spaniards had admitted the English claim in their maps and would not be able afterward to deny it. On the very earliest map known that shows the discoveries of Columbus, the discoveries of Cabot are marked also, with the note in Spanish, "Sea discovered for the English." The map was drawn by Cosa, the pilot and friend of Columbus, who knew well that though John Cabot was not, like his son, an Englishman born, yet the discovery of the North American coast was made "for the English." It is announced from Spain that a reproduction of this celebrated map is being made for the World's Fair.

We said just now that we had good contemporary authority. Here it is: In the great work of Hakluyt, "Principal Navigations . . . of the English," he gives an account by a survivor, Edward Hayes, of the ill-fated expedition of Sir Humphrey Gilbert, in which, speaking of the causes which led to the attempt, he says: "The first discovery of these coasts (never heard of before) was well begun by John Cabot, the father, and Sebastian, his son, an Englishman born, who were the first finders out of all that great tract of land stretching from the cape of Florida unto those islands which we now call the Newfoundland; all of which they brought and annexed unto the Crown of England. . . . Then seeing the English Nation only hath right unto these countries of America from the cape of Florida northward by the privilege of first discovery, unto which Cabot was authorized by regal authority, and set forth by the expense of our late famous King Henry VII, which right also seemeth strongly defended, . . . it may greatly encourage us . . . to prosecute effectually the full possession of those so ample and pleasant countries appertaining unto the crown of England."

Several other writers have given valuable information on the subject. In our next issue we hope to be able to present some facts which will establish beyond a doubt that the alleged discovery of North America by Christopher Columbus is a delusion and myth like the story of William Tell.

MEDICAL.

ANTIDOTE FOR POISONS.

USEFUL HINTS TO GIVE PATIENTS FOR EMERGENCIES.

In cases where the other articles to be used as antidotes are not in the house, give two tablespoonfuls made mustard in a pint of warm water. Also give large draughts of warm milk or water mixed with oil, butter, or lard. If possible, give as follows:

For Bed-Bug Poison, Blue Vitriol, Corrosive Sublimate, Lead Water, Saltpetre, Sugar of Lead, Sulphate of Zinc, Red Precipitate, Vermilion,	Give milk or white of eggs, in large quantities.
For Fowler's Solution, White Precipitate, Arsenic,	Give prompt emetic of mustard and salt tablespoon of each; follow with sweet oil, butter, or milk.
For Antimonial Wine, Tartar Emetic,	Drink warm water to encourage vomiting. If vomiting does not stop, give a grain of opium in water.
For Oil Vitriol, Aqua Fortis, Bi-carbonate Potassa, Muriatic Acid, Oxalic Acid,	Magnesia or soap dissolved in water, every two minutes.
For Caustic Soda, Caustic Potash, Volatile Alkali,	Drink freely of water with vinegar or lemon juice in it.
For Carbolic Acid,	Give flour and water or glutinous drinks.
For Chloral Hydrate, Chloroform,	Pour cold water over the head and face, with artificial respiration, galvanic battery.
For Carbonate of Soda, Copperas, Cobalt,	Prompt emetics; soap or mucilaginous drinks.
For Laudanum, Morphine, Opium,	Strong coffee followed by ground mustard or grease in warm water to produce vomiting. Keep in motion.
For Nitrate of Silver,	Give common salt in water.
For Strichnine, Tinct. Nux Vomica,	Emetic of mustard or sulphate of zinc, aided by warm water.

TONICS.

POPULAR DELUSIONS ABOUT TONICS.

The Boston *Journal of Health* sounds the following warning on this subject which it would be well to heed:

Probably for no other class of remedies is there so great a demand as for those tonics that are commonly called appetizers. These are all more or less bitter, and are considered incapable of harm. As generally used, however, they do far more harm than good. They excite a feeling of hunger, it is true, but unless the doses are smaller than the layman unadvised is likely to take, they are sure not only to retard digestion, but to irritate the stomach and more or less upset the organs intimately associated with it.

He who feels that he needs an appetizer in the form of medicine, instead of buying tinctures, extracts, or other prepared solutions, will do well to obtain of a druggist one ounce of the dried herb thoroughwort. This should be put in a pint of boiling water, allowed to stand for two hours, and then strained. After which it should be stored in an ice chest, or other cool place. The dose is two tablespoonfuls three or four times a day. Thoroughwort is one of the best of the simple bitters, and has a mild tonic effect, especially in dyspepsia and general debility.

The prepared drugs that are most often used as appetizers are the tinctures of gentian and colombo. These are generally combined, and to them is frequently added the syrup of ginger. Such preparations are almost always taken in much too large doses, and instead of improving digestion they really impair its powers. Compared with thoroughwort their cost is very much greater; yet the herb tea has a better effect and when taken as advised is incapable of harm.

Of so-called strengthening tonic, quinine or some form of iron is generally resorted to by laymen. In certain conditions of the system these agents act well; but, without doubt, in nine cases out of ten in which they are used they are not needed; and not infrequently they do harm. It is a positive fact that there is not a single tonic in the way of medicines that a person could safely and wisely take unadvised, did he seek to recover lost strength.

Nor is there a tonic known to physicians that is likely to prove strengthening in a large proportion of cases of debility. There are a variety of drugs that will stimulate and give a healthier tone to certain parts of the system, and, perhaps to the entire system, but as a rule they are very powerful, and a person who has not an intimate knowledge of them, their nature and effects, would be sure to injure, if not kill himself, were he to trifle with them. These agents only do well in selected cases. Strychnia, for instance, might do one patient good, while another, presenting to the uninformed much the same symptoms, would be made much worse by it. The simplest of all the strengthening tonics is iron, and yet, contrary to the popular idea, this can only be used in a small proportion of cases of debility.

In a word, those persons who seek to regain lost strength by the means of tonics, and without medical advice, must rely upon good, wholesome food, pure air, and judicious exercise; because, were they to trifle with drugs, not only would they gain nothing by it, but would be sure to do themselves very great harm, although by the way, they might not at the time recognize the harmful effects of their experiments.

TOMATOES AND CANCER.

Now that the time of the abundance of tomatoes is come, the voice of the cancer querist is heard in the land, and such journals as open their columns to the anxious inquirer about things in general, and things medicinal in particular, are occupied with settling the doubts of those who are afraid to eat this succulent vegetable lest they should be sooner or later afflicted with cancer. Some of the answers are even more foolish than the questions, such as that of a correspondent who, while consoling the readers of the journal, whose subscribers were interested in the subject, assured them that the tomato is more likely to be a preventive than a cure for cancer. He adds that he has treated cancer "with great success;" "its cause is very simple" (simpler even than tomatoes), and he "does not think its cure should be so hopeless a cure as it appears to be." If the popular belief were that this innocent and much maligned vegetable was a cure for cancer, we could understand it on the principle of the "doctrine of signatures," which is a superstition at least as ancient as Pliny. The tomato may be suggestive of certain tumors; to the ignorant mind reasoning from analogy of similar superstition, they should be considered as remedies for such diseases. That they should be believed to cause the disorder is as contrary to the tradition of the most respectable superstitions as it is contrary to common sense.—*Brit. Med. Jour.*

NEURALGIA OF THE TOE.

A neuralgic pain, more or less severe, at the base of the fourth toe is not uncommon, but has attracted medical attention only within recent years. Dr. Morton of Philadelphia in 1876 was the first to describe it, and to report a number of cases. He had himself suffered a great deal from it.

The attacks always came on suddenly. He was often obliged to remove his boot, sometimes when walking in the streets, sometimes when riding in his carriage, and sometimes even when in company. When on horseback he has been compelled to dismount, tie his horse to a tree and lie on the grass, unable to proceed further.

He found the affection much more frequent in women than in men—a result, no doubt, of the greater delicacy of women's feet and of their wearing tight shoes.

Dr. Bradford, to whose paper on the subject, read before the Suffolk Medical Society, we are indebted for our facts, says that his own investigations in respect to this ailment accord exactly with those of Dr. Morton; that the symptoms were the same, and the proportion of male and female patients about the same.

One of Dr. Bradford's cases was that of a young lady obliged to stand all day. She was in excellent health, but for years had suffered from pain in her right foot, radiating from the base of the fourth toe. Her shoes were made with great care, but she suffered all the time, and sometimes the pain was so intolerable that she would willingly have submitted to a surgical operation for relief. She was relieved by treatment and properly constructed shoes.

The following is, in brief, an explanation of this "metatarsal neuralgia," or "Morton's affection of the foot." The base of the fifth, or little toe is in a line with the neck of the fourth toe's corresponding joint, and by becoming pressed against the nerves of the latter, it irritates and inflames them.

The pain which results is sometimes only of a dull character, but sometimes is severe and throbbing, and may extend above the ankle. As in other neuralgic pains, there is no inflammation to be seen nor any swelling.

In most cases protracted rest and the use of quite broad-soled shoes will effect a cure; but sometimes the excision of the head of the fourth metatarsal bone is necessary.

TOOTH WASH.—The favorite dentifrice solution of Beaumetz is the following, which, in order to prevent decay and preserve the teeth, should be used night and morning, and even after each meal, should there be any commencing to decay: Take of boracic acid 25 grains; phenic acid, 1 grain; thymol, 0·25 grain; water, 1 litre. Then add spirits of peppermint, 10 drops; spirits anise, 10 grains; cochineal, to color; alcohol, 100 grains.

HEALING BY MILK

THE LACTEAL FLUID WILL REDUCE BURNS WHEN OTHER THINGS FAIL.

Milk has been found to possess remarkable healing qualities if applied to burns at an early stage. Compresses are soaked in milk and laid on the burn, to be renewed night and morning. An extensive burn has in this way been reduced in three days to one-quarter of its original size. Another burn, which had been treated for eight days with olive oil and oxide of zinc, healed rapidly under a milk dressing.

PRESERVING THE EYESIGHT.

READERS SHOULD CONFINE THEMSELVES TO ROUND-FACED TYPE.

Eye experts insist that people who wish to preserve their eyesight will do well to confine their reading as far as possible to round fat-faced type and to avoid that which is tall and thin. It was the shape of the type of the tiny edition of Dante produced at the French Exposition, almost as much as its minuteness, which blinded some of the persons engaged in correcting the sheets. Another important point is to avoid too wide a column, or the eye is strained. The only way to neutralize the tendency to such strain is to turn the head from side to side, after the manner of short-sighted people. The width of a column of reading matter ought not to exceed at the outside two inches, because that is about the natural range of the eye when the head is kept motionless.

HOUSEHOLD.

SIDE-DISHES, RELISHES, ETC.

Beef Soup.—One pound of beef; two quarts water; one cup rice or barley; salt to season. Put in a soup pot, let it boil slow and steady for two hours; in another vessel have a good soup bone, leek, parsley, one onion, a potato, half a carrot, turnip; let it boil as long as the meat; when ready to set the table, strain the soup off the bones and vegetables into the other; stir up when ready to put on the table; take two eggs, beat well in the soup tureen, add the soup gradually so the eggs will not curdle. Always boil bones and vegetables separate, and strain them, and you will always have a good as well as a cheap soup.

Plain Chicken Fricassee.—Cut up the chickens, and wash well in salt water; put them in a pot with enough cold water to cover them; add (for two chickens) half a pound of salt pork, cut up in thin strips; cover, and let heat very slowly and then stew until the fowls are tender. Cook slowly—if they cook fast they toughen and shrink. When almost done, add, if desired, a chopped onion or two, some parsley and pepper; cover closely again, and, when heated to boiling, stir in slowly a teacupful milk containing two beaten eggs and two teaspoonfuls flour; boil up again, and add one tablespoonful good butter. Arrange the chicken nicely in a deep dish, pour the gravy over, and serve hot.

Fricassee of Calf's Liver.—Two pounds liver cut into strips more than half an inch thick, and as long as your finger; two young onions minced; one glass wine; pepper, salt and parsley; butter or dripping for frying; one-half cup good gravy. Dredge the sliced liver with flour, and fry to a light brown, quickly, and turning often. Mince the onions and parsley, and heat them in the gravy in a sauce pan; put in the fried liver, let all stew together gently for ten minutes, when pour in the wine, and as soon as this is hot, serve—the liver piled neatly, and the gravy poured over it.

Saratoga Potatoes.—For a family of four, slice and pare six good-sized potatoes, with a potato slicer—a knife will not do, for if they are not very thin they will not be crisp. You can buy a slicer for twenty-five cents at any hardware store. Let the slices remain in cold water all night; in the morning drain them through a colander; wipe them dry and drop them into boiling fat as you would doughnuts; do not let them brown too much; sprinkle a little salt over them as you take them out with a skimmer. You can make a large quantity of these and warm by putting them in the oven as you want them.

Catskill Milk Potatoes.—Take good, sound potatoes, cut them in slices (raw), and put the milk, according to the quantity you wish to make in a pudding dish, then after you have put the potatoes in the milk, put it in the oven for about twenty minutes, then take out and put the potatoes with the same milk into a saucepan to boil until done; season before you put them to boil.

Veal Marble.—Boil a beef-tongue the day before it is to be used, and a like number of pounds of lean veal; or the lean of a well-cooked fillet will do as well. Grind first one, then the other, in a sausage-cutter, keeping them in separate vessels until you are ready to pack. If you have no machine for this purpose, chop very fine, season the tongue with pepper, powdered sweet herbs, a teaspoonful of made mustard, a little nutmeg, and cloves—just a pinch of each; the veal in like manner, with the addition of salt. Pack in alternate spoonfuls, irregularly as possible, in cups, bowls or jars which have been well buttered. Press very hard as you go on, smooth the top, and cover with melted butter. When this cools, close the cans, and keep in a cool dry place. Turn out whole, or cut in slices for tea. It is a pretty and savory relish, garnished with parsley or the blanched tops of celery. You can use ground ham instead of tongue. It is hardly so good, but is more economical.

Fig Cake.—14 lbs. sugar, 4 pts water, 6 lbs. glucose, 2 lbs. gelatine (weighed dry), ½ oz. tartaric acid, ½ oz. carbonate of soda, ½ lb. pulverized sugar, lemon flavoring, 7 lbs. figs.

First soak the gelatine. Bring the sugar and water to a boil. Add the glucose, and boil all together to stiff ball. Remove from the fire and add the gelatine and flavor. Stir the gelatine well in until melted. Then cut the figs into very small pieces. When the gelatine has dissolved add the acid, soda, and pulverized sugar, stirring as quickly as possible; now add the figs, stir well in, then pour out into tins about an inch deep. Sprinkle the top with a little colored crystal sugar. When it is cold, remove from the tins, cut into bars, then pack away in boxes ready for sale.

WASHING.

AN EXPERT'S ADVICE.

[Concluded.]

"Soda is a salt which is found in a native state, and is collected for purification; but the vast percentage of our common soda (carbonate of soda) is manufactured from chloride of sodium (common salt). There are now several processes for its manufacture, but we need not stop to consider them in detail. The processes roughly consist of obtaining sulphate of soda and hydrochloric acid, from common salt, then converting the sulphate into black ash, and finally the black ash into carbonate of soda. Soda crystals, or washing soda, is obtained by dissolving black ash in hot water, filtering the solution, and, after boiling, allow the salts to crystallize. Soda is used in the laundry, partly on account of its softening effects on hard waters, and partly because it possesses high detergent powers. It acts as a solvent of all fatty acids, and allows them and other accumulated matter to be washed out. Soda used in too great a quantity has a destructive effect on linens and woolens. Mixed in a small quantity of warm water it makes a mild lye, which may be added in moderation to the soaking fluids for much soiled or greasy goods.

"Although soda seems to be much more in favor with modern washerwomen borax has a far longer and more innocent history. Borax, while not violent in its action like soda, has a powerful effect in softening water and dissolving fats, etc. If dissolved in hard water, and soiled linen be placed in it, the dirt is soon loosened in a marvelous manner, and is then easily washed out. Borax, seemingly, has merely a softening effect, for, notwithstanding its rapid and radical effect upon dirt, it does not attack either cotton, wool, silk nor linen; neither does it disturb the dyes. Moreover, borax has no other effect on water than softening it, thus it may be safely used in all soaking, washing and rinsing waters. It should be employed in nearly all cases instead of soda. One tablespoonful of prepared California borax to every gallon of hot water will make an effective soaking fluid.

"The removal of stains is a process much dreaded by the professional laundryman; but though the process may take up time it is fully worth the trouble, and, if the turning out of good work is aimed at, it is essential and really saves labor. It is well to remember that precautions should be taken thus early, because soap combined with boiling or hot water goes far to make most stains permanent.

"Linen and other fabrics having mildew blotches must be set apart for treatment before other articles are contaminated. Spread the stained parts over some hard surface, take off as much as will come away upon a rag, rub in a little salt, and then sprinkle liberally with chalk, which must then be moistened and the article dried slowly. It may be necessary to repeat the process, rinsing after each operation. It the drying can be done in the sun so much the better.

"To remove ink stains dip in boiling water for a few minutes. Tighten the part to be treated over a bowl and rub in some salts of sorrel. Rinse thoroughly. Salts of sorrel are poisonous, but will not damage textile fibres. For the removal of copying and marking inks, wash the parts with a strong solution of bleaching powder; then apply a cold solution of oxalic acid. Rinse in cold water.

"Rust should be removed with salts of lemon well rubbed in on the wet surface.

"When any article has had tea or coffee spilled over it, be careful not to allow soap to touch it till the stains are removed, for the alkali in the soap will make the coloring matters turn into a 'fast dye.' Spread the stained parts over a cup or basin, and pour clean, soft, boiling water through it. If the stains prove obstinate, rub in a little powdered borax and pour on more boiling water; then place the articles to soak.

"If wine has stained the article, place the stained part over a bowl or basin, rub some common salt into it and pour boiling water through. Persist in the operation until the stain grows very faint and disappears.

"Machine and other grease or oil may generally be removed from linen and cotton by pouring cold rain (or other really soft) water through the spots; borax will help.

"When chemicals have been used for the removal of stains, the hands should be washed at once, and rinsed in a little aromatic vinegar. This will prevent the hands being discolored, and will kill all disagreeable odors."

TO CLEAN A WATER FILTER.

Where drinking water is obtained directly or indirectly from rivers or streams, usually it may be much improved both in taste and healthfulness by the use of efficient household filters, These, whether consisting of natural or artificial stone, or of layers of gravel, sand and charcoal, when working well, collect not only the mud and silt but also many minute vegetable and animal bodies.

In most filters some provision is made for readily removing much of this collected matter, but the finer pores of the filter are not accessible, and after much use may become choked, or even impart odor to the water.

In order to correct a filter when thus foul, cleanse the upper portion as far as you can. Then dissolve one ounce of potassium permanganate in one gallon of water and pass the deep purple solution through the filter (it will come out but faintly colored); follow this with four or five gallons of water and the filter will be found to be cleansed.

The above amounts will suffice for a six-gallon filter, and in the same proportion may be employed for other sizes.

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Furniture Paste.—The *Drogisten Zeitung* gives the following, which, while not new, is excellent, as we can testify: Digest three parts of alkanet root, finely divided, in a mixture of forty parts of oil of turpentine and four parts of linseed oil. As soon as the oils have taken the desired depth of color, strain off, add eight parts of melted wax, and stir well in.

ADULTERATION.

ADULTERATION.

AS SEEN AND EXAGGERATED BY THE NEWSPAPER REPORTS.

Some very startling facts which have a bearing on the present agitation in favor of pure food have been gathered by the Department of Agriculture.

Glucose, it appears, is the greatest of all adulterants. It is used for making cheap candies, sugars, jellies and syrups. An idea of the extent to which it is employed is obtained from the fact that ten pounds of it are manufactured annually in the United States for every man, woman and child. It is prepared from corn. Most of the less expensive jellies in the market are purely artifical products, composed of gelatine, sugar, cochineal and flavoring extracts. Most costly jellies of various fruits are simply apple jelly colored and flavored. Apple sauce is pumpkin boiled in cider.

It is said that cheap confectionery and liquors are the articles most injuriously adulterated. Candy commonly contains much fusel oil and other poisons. Strawberry ice cream—a plate of it—often contains more fusel oil than five glasses of poor whisky. It is colored with red aniline dye. Licorice drops are usually made out of candy factory sweepings. Wine is frequently nothing but water, with a percentage of crude alcohol from grain or the refuse of beet refineries, colored with burnt sugar, flavored with oil of cognac and given an agreeable woody taste with a little catechu. Among other adulterants of liquors are vitriol, opium, alum, copperas, logwood and sugar of lead.

Some package coffees are made of peas, rye, roasted and ground almond shells treated with molasses, beans, acorns and chicory. There are twenty different substances known to the trade as coffee substitutes, Among these are the artificial beans, made out of potato starch and other materials, which are imported from Germany in large quantities for mixing with the real article. They can be detected by the fact that they will sink in water, whereas the true coffee beans will float. Shrivelled coffee beans are commonly soaked in salt water to make them look plump. It is usual to extract the essential oils from coffee beans before selling the latter as coffee, the essences being manufactured separately into extracts.

Spices of all kinds afford an inviting field for the exercise of fraudulent arts. They are almost always sold in the form of a fine powder, and any cheap substance serves as a substitute Peas and beans are largely employed for this purpose. In fact, the production of so-called "spice mixtures" or "pepper dust," from which any kind of spice can be readily manufactured by the retail grocer, has grown to be an important branch of industry These products are variously known as "P. D. pepper," "P. D. ginger," "P. D. cloves," and so on. They are sold by the barrel and are made to resemble in appearance the genuine articles they represent, the merchant having it left to his discretion how much of the real stuff he will add in each case for flavoring.

Almost any sort of refuse serves very well as material for these preparations. For black pepper the producer commonly uses roasted ship's bread, mustard husks, corn meal, linseed meal, wheat, rice, and particularly cocoanut shells. Pure ginger is made out of corn meal by simply adding red pepper and salt. Allspice is composed of mustard husks, cracker dust and corn. Mace is mostly flour, corn meal and buckwheat. Cayenne pepper is chiefly ground rice, flour and red lead. Mustard is flour and cayenne pepper. Whatever substance may be employed roasting serves to give them the proper color, while a sifting of finely powdered charcoal will transform corn meal into black pepper at short notice. One firm in New York City puts on the market 5,000 pounds of ground cocoanut shells yearly, for purposes of adulteration, advertising to supply dealers with "all necessary information for spice manufacturing."

The flower buds of the clove tree, known commercially as "cloves," are fraudulently subjected before they are sold to a process by which their volatile oil is removed, the latter being marked as "essence of cloves." However, the thrifty dealer does not permit the cloves to leave his hands until he has added to them clove stems, allspice and burnt nut shells. What is known as "essence of coffee" consists mostly of burnt molasses. Many of the flavoring extracts used in the household are mixtures of acids and other drugs. They are all more or less harmful. Cream of tartar often contains as much as five per cent of oxalic acid. Cider vinegar is apt to be corn vinegar with sulphuric acid added. It contains none of the little eels which are found in good vinegar, because they cannot live in it.

When one buys tea for $1 a pound one is very likely to pay in reality $2 a pound, because half of the quantity is currant leaves. Indigo, soapstone and china clay are among other usual ingredients of tea. Sago is often potato starch. Grated horseradish is sometimes composed of turnips. Bologna sausage may be putrid meat of unidentified animals, colored with saltpetre and Venetian red. Flour is frequently weighted with soapstone. Sweetened water sharpened with citric and tartaric acids and flavored with oil of orange skin, makes orange cider. It costs 16 cents a gallon to make, and sells for $2.50 a gallon. Maple sugar may be glucose, and so may honey. Real honey can be distinguished under the microscope by the pollen grains it contains. They have wonderfully beautiful forms, and the very flowers from which the honey has been obtained can be identified by the various exquisite shapes of these fructifying germs.

It is estimated that $90,000,000 worth of fraudulent food products are mixed with good articles or sold in place of them annually in the United States. This amount is stolen from the people by men who coin fortunes by cheating the consumers. Incidentally, the products of the farm are cheapened and the producers robbed as well.—*Philadelphia Star*.

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COCOA PREPARATIONS AND THEIR ADULTERATIONS.

A REVIEW OF THE GOVERNMENT CHEMIST'S REPORT.

[Continued.]

The analyses of the samples which were made by the U. S. Department of Agriculture consisted in determining the character of the starch which was present, the theobromine and other nitrogenous matter, the percentages of fat, cane sugar, reducing or fruit sugar, crude fiber, ash and acid equivalent. Foreign starches were found in a great many of the samples. These starches were derived from wheat, arrowroot, rice, maize and potatoes. The amount of fat found in the samples varied from a maximum of 50.84 to a minimum of 3.40 per cent.

The flavoring matters found were vanilla, powdered salep and cinnamon. Of the sixty-four samples examined, six were classed as plain chocolates, thirty as sweet chocolates, and twenty-eight as cocoas, bromas, etc. Of the total number of samples, twenty-seven contained large quantities of foreign starches, fourteen excessive quantities of cocoa husks, seven over 25 to 40 per cent of added sugar; one contained from between 40 to 50 per cent of added sugar, twenty-five between 50 to 60 per cent of the same, and eight contained from 60 to 72 per cent—72 per cent being the largest quantity of added sugar found in any of the samples.

In regard to the chemical examination in general, it may be said that the determination of the ash serves as a means of estimating the extent of dilution with foreign materials of organic or inorganic origin. The per cent of ash decreases with the addition of substances which contain very little ash, such as starch and sugar; it increases in proportion as the fat is removed. The addition of mineral matter, for the purpose of increasing the weight or improving the color, would at once be detected by a corresponding increase in the percentage of ash. By the ash analysis only three of the samples could be condemned for having mineral matter added in their preparation. In the cases mentioned it is unquestionable that alkalis were employed in the preparation of the sample. In two other cases the quantity of ash found, while not sufficient to condemn the sample, was at least enough to cause the greatest suspicion as to its purity.

In regard to sugar and starch, the analyses show that they are used to an alarming extent, not in the sense of being prejudicial to health, but in the sense of flooding the market with cocoa preparations containing very little cocoa. The quality of the sugar used, as determined by the analysis, was universally good, so that no objection can be urged against its employment, on the score of a poor quality. The determination of the amount of the alkaloidal principle, theobromine, is of very little value in fixing the quality of the cocoa inasmuch as it exists in the original bean itself in varying proportions. If, however, only a very small quantity of this alkaloid were found, it would be a pretty sure index of adulteration with some non-alkaloidal substance. The estimation of the fat is of greater importance, but, as has been before remarked, no conclusive evidence can be derived from such a determination, unless the fat be identified as the natural fat of the cocoa, or otherwise. The estimation of the insoluble fiber is valuable in determining whether or not an undue quantity of cocoa husks has been used in the preparation of the sample. The claims which are made for the food value of cocoa are doubtless exaggerated. Still it is true the cocoa which is of the highest intrinsic value must be considered as the purest when it is to be used as a beverage, but the amount taken into the stomach at a single meal is quite insignificant from a nutritive point of view. The average cup of cocoa contains only about fifty or sixty grains of the cocoa bean itself and this quantity, of course, is of no consequence when the nutrition of the body is considered. The chief value of the cocoa, it must be conceded, is not so much its food properties, but its flavor, and the presence of theobromine which exerts a pleasant influence upon the system.

In general, the results of the examinations which have been made emphasize in many ways the arguments which have been used for the establishment for some standard of purity, by means of which not only these preparations but also other foods offered on the market could be judged. It is impossible for any one to state in any given sample among those examined the extent of adulteration, because there is no standard by which a comparison could be made, not only from an economic but also from a scientific point of view. It is highly important that some such standard should be fixed. In the Paddock Pure Food Bill which has passed the Senate and is pending in the House of Representatives, there is given to the Secretary of Agriculture the authority to establish such standards. Until this is done it is useless to cry adulteration and fraud, and all that we can ask is that the manufacturer shall be honest with the people, that he will sell his preparations for what they are worth.

The consumer will find it to his interest to buy cocoas made by a well-known reputable manufacturer, who has his character at stake, if his goods are found to be different from what they should be; do not be deceived by specious advertisements, and be careful above all things not to buy foreign made goods, simply because they are foreign goods. There are plenty of pure, first-class American-made cocoas. Find a good brand that suits you and stick to it. In our next we shall give some further details of the findings as to specific preparations.

ADULTERATED SPICES.

AN ENGLISH VIEW OF THE SUBJECT.

In these days of fierce competition and fraudulent dealing adulteration has become an art in which a knowledge of science and the ingenuity of trade are freely exercised for deceptive purposes. Perhaps no ingredients lend themselves so readily to the manipulation of the "sophisticator" as spices. People in general know so little about spice that it can be adulterated in the most wholesale and barefaced manner It requires the trained skill of an expert to fully expose the many frauds that are perpetrated in the spice trade. We have gained a considerable amount of information on this subject recently, and we will give our readers some of the facts which have reached us.

Pure spices are debased for pecuniary profit by adding to them inferior and spurious articles, or by taking from them one or more of their constituent parts. The practice has grown with present-day competition, in spite of severe laws prohibiting it. It is not at all an uncommon thing to see ground spices sold at less than half the price of the unground article, a fact which sufficiently indicates that grinding is not the only process which the spice undergoes. It means of course, that the ground spice has been more than doubled in its bulk by the addition of some much cheaper substance. Some firms go so far as to advertise adulterated goods, and evade the law by calling them compounds. Ground ginger is adulterated with meal, rice, flour, starch, cayenne pepper, and manilla rope. The true ginger root has a very fine hair-like fiber running through it, and this is found in the ground article. Many people will not buy ginger unless they see the fiber, and bits of ground rope are made to take their place in the adulterated article. The cayenne pepper gives the necessary pungency. Sometimes chrome yellow, a poisonous article, is used for coloring. Cloves are adulterated by an admixture of the dried and ground twigs of the trees from which the cloves are gathered; also with ground cocoanut shells and pepper dust. Allspice is also treated in the same way. Considerable cleverness is shown in the adulteration of cinnamon and nutmeg. Stale and broken biscuits, or damaged and common flour, are baked in an oven and afterwards ground up to a fine powder, and this is freely mixed with the ground cinnamon and nutmeg. In adulterating mace, Venetian red is mixed up with this baked dust. Cayenne pepper is adulterated with meal, farina, cocoanut shells, Venetian red, and salt, the whole being ground up together. The salt gives a brighter color to the red, which is itself a poisonous substance. In some cases the essential oils are even extracted from the pure spice prior to the grinding.

HYGIENIC.

EFFECTS OF TOBACCO ON PHYSICAL DEVELOPMENT.

AT YALE AND AMHERST.

Jay W. Seaver, M. D., college physician of Yale University gave in the *University Magazine* for June, 1891, the following statement:

"The general interest that has been shown in some statistics recently published in the *Yale News* regarding the effect of the use of tobacco on the growth of young men leads me to make a more extended statement of the facts.

"Through the assistance of several members of the senior class who have kindly helped me in compiling my records and securing the exact data I am able to make a more complete statement, and equally interesting, from a scientific point of view. The data at present discussed relate to 187 men, composing the present senior Academic class at Yale. All of these men have been examined and measured at least twice during the course, viz.: immediately after entrance, and in the last term of the senior year, with two exceptions. Over 90 per cent of the men were also examined in the sophomore year, and many in the junior year.

"The material is fairly complete, therefore, and the group large enough to eliminate the elements of mechanical error and chance growth.

"A record of the users of tobacco has been kept at Yale for the past eight years for the main purpose of determining the number of men who began the habit while in college, and, from the uniformity of the records considerable confidence has been felt in the results obtained.

"On entering college the class of '91 had a list of thirty-eight tobacco users, or about 18 per cent of the 205 men. At the beginning of the junior year this percentage had been slightly increased, although eighteen of the men who were recorded as tobacco users left the college, for one reason or another. At the end of the senior year the record stands as follows:

"There are seventy-seven men who have never used tobacco.

"There are twenty-two men who have used it slightly at rare intervals, of whom six have begun the practice in the last term of senior year.

"There are seventy men who have used it regularly.

"The growth of the men in four of the principal anthropometrical items, of varied character, is as follows:

	Wt.	Height	Chest Girth	Lung Cap'y
Non-users,	*11.78 lbs.	.894 in.	1.74 in.	21.6 cu. in
Irregular users,	11.06 lbs.	.788 in.	1.43 in.	14.45 cu. in
Habitual users,	10.66 lbs.	.721 in.	1.276 in.	12.17 cu. in

"If this growth be expressed in the form of percentage, it will be seen that in weight the non-users increased 10.4 per cent more than the regular users, and 6.6 per cent more than the occasional users. In the growth of height the non-user increased 24 per cent more than the regular user, and 14 per cent more than the occasional user. In the growth of chest girth, the non-user has an advantage over the regular user of 26.7 per cent, and over the occasional user of 22 per cent, but in capacity of lungs, the growth is in favor of the non-user by 77.5 per cent, when compared with the regular users, and 49.5 per cent when compared with the irregular users.

"It has long been recognized by the ablest medical authorities that the use of tobacco is injurious to the respiratory tract, but the extent of its influence in checking growth in this and in other directions, has, I believe, been widely underestimated."

Dr. Seaver's conclusions in regard to the dwarfing effect of tobacco are fully corroborated by the following statement by Professor Edward Hitchcock, M. D., of Amherst College, more recently published:

"The matter of tobacco smoking as an influence upon the physical development of Amherst students has been studied in the history of the class of '91. Of this class, 71 per cent have increased in their measurements and tests during their whole course, while 29 per cent have remained stationary or have fallen off.

"In separating the smokers from the non-smokers, it appears that in the item of weight the non-smokers have increased 24 per cent more than the smokers; in height they have surpassed them 37 per cent, and in chest girth 42 per cent. And in lung capacity there is a difference of 8.36 cubic inches [this is about 75 per cent] in favor of the non-smokers, which is 3 per cent of the total average lung capacity of the class."

Here, then, is scientific demonstration that the use of tobacco checks growth in weight, height, chest girth, and most of all and most damaging of all, in lung capacity.

If this be true of young men so nearly grown as are college students, what must be its effect upon younger boys? Their growth ought to be much more rapid in proportion, but their undeveloped organs cannot so well resist the influence of this poison, and they must be dwarfed and stunted far more than those who are older. Many imagine that it is "manly" to use tobacco. Instead it hinders the growth of the user in all that goes to make a man.

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*Metric measurements, also given by Dr. Seaver, are omitted.

MISCELLANEOUS.

MAN'S EATING.

POPULAR DIET AND POPULAR DISHES.

Professor Doctor Karl Vogt.

"Man tastes everything," says Alb. v. Haller, and if he had said, "man eats everything" I would have assented without qualification, and perhaps have added that "man is what he eats." It doesn't follow, of course, that he likes everything he eats, at any rate he likes some things less than others. When the devil is hungry, as the proverb says, he will eat flies, and when man is hungry he will eat grass and bark, as the Russian peasants are now said to, but it doesn't follow that they find the dishes palatable. At the same time, hunger is the best cook, and the absolutely starving man finds a gratification in eating anything that quells the pangs of hunger.

But man lives, not by what he eats, but by what he digests. He can digest albumen, fat, starch, and sugar, and their digestion generates the necessary bodily heat, and affords materials for assimilation; but woody fibre and sawdust, although they contain the alimentary constituents of the above-named substances, do not hold them in soluble form and are consequently indigestible.

Man is scattered over the whole earth, and in past ages his diet has been restricted to the food products of his own country, and, as we know, there is considerable diversity in the natural organic products of the several great geographical divisions of the earth. In every region, too there have been great geographical changes since man peopled the earth, and these changes have induced dietary revolutions, to which man has had to adapt himself.

To many it is a matter of surprise that primitive man should have displayed so much judgment in his selection of wild plants and animals for cultivation and domestication. But then he had really little else to do; all his faculties were devoted to the gratification of his appetites, and he had to reach results by experiments *in corpore vile*, with what fatal consequences we know not. For ages past, every Indian child has known by tradition that the juice of the Manioc is deadly poison, and must be washed out before the nutritious arrow-root can be utilized as food. No instinct guided man to this process. Thousands, perhaps, fell victims to the fatal poison before the art and method of separating it from the meal was discovered.

Primitive man in the past, like savage man as we know him, ate everything that came in his way. When he was fortunate in the chase, he gorged himself until he was no longer capable of exertion, and such periods of feasting were alternated with periods of hunger, during which he subsisted on such insects, berries, roots, fruits, fungi, etc., as came in his way. He had his preferences, too, notably for wild honey and fruits, for which we have inherited his fondness. Modern savages, too, have their favorite dishes. Ornithologists in Australia tell us that echidna (ant-eaters) were often brought to their camp, but ornithorynchus never. These were kept for home consumption.

The passage from nomadic to stationary habits exercised a considerable influence on diet. Firstly, it conduced to a certain regularity of meal times and to moderation in eating; secondly, to a more general employment of fire in the preparation of food; thirdly, to the domestication of animals for their flesh and milk and eggs; and, fourthly, to agriculture, which involved a considerable development of the processes for the preparation of food. Then followed the development of the potter's art, and the fabrication of pots in which flesh and vegetables with salt or other native seasoning could all be cooked together, thus affording a greater variety, and laying the foundation of a greater delicacy of taste.

It goes without saying that the character of the domesticated animals and cultivated plants were determined at the outset by available indigenous varieties, and this in turn led to modifications in diet, in habit, and condition. Imagine only what might have been the stage of development of the American Indians if domesticable oxen and sheep and goats and camels had been indigenous to the continent, or if from the earliest times the people had been in communication with other pastoral peoples possessing them! Is it too much to say that the civilization of Mexico and Peru was due in great part to the domestication of the llama?

It was a pious idea propounded as lately as Buffon's time, that every region had the animals best suited to it, and in modern times we find the samea ide propounded in the theory of the survival of the fittest, but that the position is utterly indefensible in shown by the flocks and herds of Australia and the pampas of South America. Indeed there are historical evidences to show that most of the domesticated plants and animals on which European civilization has been reared are introduced from other lands.

Many articles of diet are incapable of being acclimatized in other zones than those in which they are indigenous. Tropical plants, as, for example, the bread-fruit tree, the sago palm, the banana, cocoanut, date, and other palm-trees cannot generally be profitably cultivated outside the tropics. Barley, oats and rye extend to the far north, wheat is limited to more temperate and warmer regions, rice entirely to the warmer regions; maize was originally the sole cereal of America; the millets predominate in Africa; rice in Southern Asia. Indeed the people who make rice their chief article of diet are three times as numerous as the wheat-eaters. All or most of these cereals have been extended far beyond their original habitats, and it has not infrequently happened that the introduction of a new dietary article into countries favorable to its growth, as for example, the potato into Ireland, has completely revolutionized the dietary habits of the people.

But while these articles of vegetable diet severally constitute the staff of those who cultivate them, they require to be supplemented with some other food articles to meet all the requirements of the system. Sixty grammes of albumen is the very lowest at which a grown man can be maintained in health; potatoes barely supply this amount, and those who make them their staff of life must supplement them either with flesh or with pulse food—beans, peas, lentils, etc., which contain actually more albumen than flesh does. These articles by stilling the bodily craving of the potato-eater become favorite dishes.

The bodily needs are great teachers, and most people have learned to mix or vary their food to meet all the requirements of the system. The Italian peasant is credited with marvelous abstemiousness, but his polenta and cheese constitute an almost ideal food

From such data as are available it is evident that the dietary regime has undergone many modifications in the course of time. In Homer's days the Greeks were purely flesh-eaters; but a few centuries before Christ we find the Athenians such thorough fish-eaters, that instead of speaking of the morning meal, or midday meal as we do, they spoke of their midday fish or evening fish, just as the North German speaks of his midday bread or his evening bread. Similarly potatoes have become the staple food of European people who a few centuries ago were grain-eaters.

But even among the purely agricultural nations, animal food is preferred to vegetable, and to this craving, cannibalism is directly traceable. Cannibalism survives only among a few people, but there is little doubt that it is a phase through which all races have passed at a certain stage of culture. Moreover, it is the universal verdict of all cannibals that roast man has the richest odor and finest of all meats.

There are national prejudicies against certain animals popular as food among other nations, as, for example, against swine, dogs, hares, etc., and the prohibitions of Moses on this score were more probably based on religious than on sanitary grounds. Again, the wealthy gourmands of civilized Europe regard the trail of snipe or woodcock as a great delicacy, but this delicacy consists simply of the worms with which the intestines are filled. Half a century or more ago, Brillat-Savarin divided Europe into two main zones, the northern or butter zone, in which the goose was the favorite delicacy, and the southern or oil zone, in which chickens and turkeys were the most esteemed. But with extended communication and commerce, national diets, like national costumes conform to the universal. Well-to-do people in Paris, in Cairo, or in Singapore, enjoy the same dishes, and this conformity, first noticed among the wealthy, gradually extends to the lower social strata in all civilized countries.—*Literary Digest.*

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MUTUAL KNOWLEDGE AND SERVICE INSTITUTE.

A HELPFUL AND PROTECTIVE ORGANIZATION FOR MEN OF PROGRESS.

This is a clearing house for general and special knowledge on all subjects, and for trustworthy and expert service in all departments of human activity and a directory to what is practically unknown or inaccessible to the mass of workers; in other words a central station where all who want accurate information or efficient service can readily have their needs supplied.

Like the telegraph and telephone it is made necessary by the requirements of modern life, and appeals to those who cannot afford to spend five dollars' worth of their time in attempting to do what is not convenient, or that for which they either have not the facilities or knowledge, while some one properly equipped could perform the service for them at half the expense. Although the Institute illustrates the simple practice of hiring clerks when affairs get beyond personal control, yet it is hard sometimes for business and professional men to understand that their own powers and time are limited and they can make better progress by keeping their grasp on the more important matters, deputing the less to others.

The Institute places at the command of progressive men and women, who are alone desirable as members, a corps of experts and assistants, who cannot risk incurring its condemnation under any circumstances, thus giving to patrons a guarantee, far above ordinary assurances, of faithful and reliable service.

This Institute was organized with the following objects in view:

1. To give expert opinions on established enterprises and new projects appealing to the public for business or support.

2. To enable experts, who require large fees on account of limited clientage to increase their clientage, and thereby decrease fees, to their own

advantage and that of the patrons of the Institute.

3. To introduce new and valuable manufactures.

4. To enable parties having anything to sell out of the ordinary channels of trade, and those who wish to buy what is difficult to find, to operate through a central office by a system of registration.

5. To give outside concerns the advantage of a branch office in New York at a small expense, where their goods can be intelligently described and sales negotiated.

6. To ascertain the price of any article and to make purchases for patrons through skilled buyers.

7. To afford parties seeking capital or investments, facilities for intelligent negotiation, with proper safeguards to the interests of both.

8. To advise strangers visiting the United States as to the best routes of travel, and to procure for them interpreters and reliable guides for New York and all parts of the continent.

9. To copy documents, make library searches, translate from and into any language, prepare books for the press, correct proofs, review books, write circulars, and perform any other literary service.

10. To guard patrons against ill-advised and badly-managed literary enterprises.

11. To transact any legitimate business in any part of the world.

12. To promote the interests of authors.

The membership fee is twenty-five dollars a year to all business men and to residents of New York and vicinity and foreign countries, and ten dollars a year to all other classes residing outside of the Metropolitan district. This is in the nature of a retaining fee.

Fifty cents must accompany every letter of inquiry addressed to the Institute, to cover cost of correspondence. If a reply can be forwarded without much research or expenditure of time no further charge will be made. Otherwise an estimate will be forwarded of cost of service before a patron incurs any obligation.

We have constituted the subscribers of the American Analyst members of sections 4, 6 and 10, for six months from this date without any expense whatever to them, so that they may become acquainted with its methods which we believe will be very helpful to them.

The Institute has undertaken to increase the circulation of the American Analyst and several other valuable periodicals through solicitors, and if our subscribers think the Analyst should find a place in every intelligent family, they can do reliable and bright men and women of their acquaintance a favor by recommending them to address the Mutual Knowledge and Service Institute, 19 Park Place, New York.

Carbolineum.—The formula for this exceedingly valuable wood preservative is, according to *L'Orosi*, as follows:

Borax	2 parts
Caustic soda,	1 part
Shellac in alcoholic solution,	9 parts
Phenol,	4 parts
Boiling water,	80 parts

Mix, and let stand.

Treatment for Sweating Hands.—Take of tincture of belladonna, 1 drachm, eau de cologne, 1 ounce. Mix. Pour a few drops of glycerine into the palm of the hand, then add to it an equal quantity of the above mixture, then rub the hands together strongly. They should have been well washed in soft water and thoroughly dried previous to the application.—*Journal de Med.*

A SEMI-CENTENNIAL.

It is at least fair to presume that a manufacturing business, based upon a special invention, which has flourished and grown constantly greater during a period of fifty years, must have a solid foundation in supplying something the world wants and in doing so with a product of exceptional merit. "Circus advertising" may "boom" into brief prosperity almost anything, particularly in this country, where people have, very generally, a well-defined mania for the trying of anything and everything that is new, even if novelty be its only claim to favor. In one respect at least, Americans obey a scriptural injunction, in that they "prove all things and hold fast to that which is good." Hence a thing which has made and maintained a hold upon popular appreciation throughout so long a time, must have successfully borne the test of practical experience, constantly applied, in competition with a succession of would-be rivals.

That reflection was suggested by noting newspaper mention of the fact that this is the semi-centennial year of the great starch manufacturing business carried on by T. Kingsford & Son, at Oswego, New York. It was in 1842 that Mr. Thomas Kingsford invented and perfected a process for extracting, in a state of absolute purity, the amylaceous cells (starch), from Indian corn. The product thus obtained being absolutely free from the oily, gummy and nitrogenous elements of the grain, was manifestly infinitely superior to anything of its kind previously known and, as such, certain to command the favor of the public by deserving it. With that assurance Mr. Kingsford went into the manufacture of starch, in a small way, comparatively, at first. The results more than justified his expectation and to keep pace with the ever increasing popular demand, his factory has been enlarged until it now turns out no less than thirty-five tons per diem of the justly celebrated "Kingsford's Pure and Silver Gloss Starch." To give some idea of the magnitude of the work required to turn out such a quantity of material a few facts and figures will be effective. No less than seventeen and a quarter acres of ground are occupied for factory purposes and of these five acres are covered by buildings of stone, brick and iron, in great part seven stories high, affording twelve acres of floor space. The forces of six hundred employes and 2,065 horse-power derived from turbine wheels and steam engines are utilized in making the 21,500,000 lbs. of starch which is the factory's annual capacity, and in preparing for the market the 72,000 handsome packages which constitute each working-day's product. The annual consumption of lumber in boxes amounts to five millions feet, and of packing paper three hundred and fifty tons. Descending to the details of machinery requisite for the processes of this stupendous manufacture, we learn that there are, for grinding the corn from which the starch is made, six pairs of heavy iron rollers and twenty-four pairs of burr-stones; to supply water for extracting the starch there are four miles of water-pipes, varying in size from two to twenty-four inches in diameter and the starch and water mixture in process of separation is distributed in six and a quarter miles of troughs, then strained through six hundred and ninety big sieves, and dried by the heat from thirty-three and a quarter miles of steam-pipes.

An effect without an adequate cause being something quite unthinkable, there must be some sufficient reason for the enormous popular demand compelling such stupendous provision for supplying, and in this case the reason is easy to find in a consensus of the judgment of consumers, all over the world, that Kingsford's starch is purer and better than any other. This credit is accorded it both as a result of its practical employment in the diverse ways it serves popular wants and from the thorough and elaborate chemical tests to which it has been put by scientists. Dr. Hassall, the eminent author of various standard works on dietetics, attests—under the seal of the London Analytical Sanitary Institution—that he has by microscopical examination and chemical analysis demonstrated Kingsford's starch worthy "to be regarded both chemically and dietetically as an arrow-root," and that from an acquaintance with it of many years he pronounces it "very pure" and "a valuable article of diet." Prof. E. Landrin, director of the laboratory of the "Union Nationale" and professor of chemistry at the Chaptal College, Paris, certifies as the result of a like double analysis that he finds Kingsford's starch "a product of an extraordinary beauty and perfect whiteness" and that it "is composed of amylaceous matter, perfectly pure and obtained without any chemical preparation."

Too much importance cannot be attached to that certification of the absence of chemical preparation of this starch, particularly by those who employ starch for dietetic purposes, since this constitutes the inherent superiority of Kingsford's starch above such as is manufactured by other processes much in vogue for the economical making of inferior starches unfit for human food.

Similar endorsements by the leading chemists and microscopists of Europe and America might be multiplied indefinitely were there any object in doing so, but it seems unnecessary, in view of the popular acceptance of the fact unanimously proclaimed for fifty years and formally expressed by the awards of highest premiums whenever placed by them at World's Fairs and minor expositions, thus showing that Kingsford's starch is incomparably superior to all others.

For laundry uses, the sizing of fabrics and the making of a fine grade of adhesives, Messrs. Kingsford & Son manufacture brands known as "Pure and Silver Gloss Starch," which by reason of their purity are much stronger and consequently more economical for the consumer than any other and at the same time productive of such perfection of whiteness and finish as is unattainable without them.

For food purposes, the firm make "corn starch" or "prepared corn," which is identically the same material as the highest grade of "arrow-root" made from the root of the *Maranta* and *Curcuma* plants, both products being simply amylaceous matter, with the balance of probability of purity very largely in favor of the corn resultant. There is absolutely no difference between them in point of flavor and desirability for epicurean employment, while for invalids' food the corn preparation is unquestionably the best. Although it has been but a few years since corn starch was much thought of as an article of food, so highly has its excellence been appreciated that it is now recognized not only by the average millions who simply know what is good and like to eat it, but by the masters of gastronomic art as a worthy material for the employment of the most cultivated taste and expert skill for its preparation in an infinity of ways.

And corn starch has been found just the most desirable of things in the estimation of many ladies, as a toilette powder. In Venezuela, where a lady of fashion hardly esteems herself in fit condition to receive company or take a promenade until she has whitened her face almost like the clown in a pantomime, el almidon de Kingsford is an essential of the toilette and is esteemed extremely beneficial to the skin.

CONVINCING PROOF.

The infinitely many and audacious attempts to beguile the public confidence by "testimonials" for all sorts of machines, nostrums and processes, have resulted in establishing a vigorous state of dubiety in the American mind as to the genuineness of such voluntary attestations of benefits received. In a majority of instances, such doubt is unquestionably justifiable, but a journalist in whom it had become an article of faith (thanks to the cultivated scepticism of his profession, added to an inherent disposition of distrust) was perperforce convinced, recently, that some of these things have to be believed. While making a visit of curious inspection to one of the largest manufactories of proprietary medicines in the world, he chanced to observe upon the manager's desk a pile of "testimonials" in course of preparation for the printer, and banteringly remarked, "You should have me get up a lot of those things for you."

"Do you suppose they are not genuine?" asked he manager.

"I should be surprised at my mental condition if I didn't."

"Just pick out any that strike you as 'bogus, and let me see if I cannot surprise you."

"Well; here are three. A woman in Brooklyn cured of scrofula; a sailor on a Norwegian whaling vessel cured of scurry in the Arctic sea; an English dragoon in South Africa cured of the loathsome and obstinate velot sores; all by the same medicine. I would gamble against them."

"You would lose, then," replied the manager smilingly, giving an order to a clerk.

In five minutes the clerk returned with the three original letters attesting those remarkable cures.

And to carry the decision of the matter beyond question respecting all the other testimonials, the manager showed to his visitor a cabinet of files, containing many thousands of such original letters, catalogued so as to be found for reference instantly at any time. This stupendous accumulation of evidence had, during over thirty years, come in from every country on the habitable surface of the earth and was in at least a dozen different languages.

That overwhelming proof of verity was afforded in the great establishment of J. C. Ayer & Co. Lowell, Mass., and the medicine which was the subject of the three testimonials referred to was Ayer's Sarsaparilla. The incident occurred exactly as here narrated, and carried conviction to the mind of the journalist, not only as to the honesty in which those evidences of accomplished good are cited, but the value of the medicine as well. Other testimonials may be fraudulent, but he knows that Ayer's Sarsaparilla is vouched for, voluntarily, by thousands of genuine witnesses, who testify of their own positive knowledge that it is a wondrously efficacious preparation, more potent than any other for the purifying of the blood, whether the contamination of the life current is through inherited taint, contracted disease simply the neglect of proper care in living.

READY FORGIVENESS.—Little Emma Perkins had been guilty of some bit of naughtiness, and her mother sternly told her to go into her chamber and ask God to forgive her. She did so reluctantly, but came out presently with a triumphant air. "Well, Emma, did you ask God to forgive you?" "Yes I did," she answered; "and God said, 'Don't mention it, Miss Perkins.'"

BOOK REVIEWS.

WORTHINGTON COMPANY, 747 Broadway, New York, announce for immediate publication as No. 30 in their International Library, WITH COLUMBUS IN AMERICA. By C. Falkenhorst, adapted by Elise L. Lathrop. With photogravures. 1 vol. 12 mo. Cloth, $1.25; paper. 75 cents.

A highly dramatic historical novel which treats of the discovery and conquest of this continent. While adhering strictly to the facts of history, the author has presented here many romantic and heretofore unknown incidents in the private lives of Columbus and his followers, and these facts together with fancies of his own, he has interwoven into a work that is at once thrillingly interesting and strikingly poetic. His heroes and heroines seem to rise before us; we are charmed by their presence and follow their adventures with breathless fascination. The narrative presents natural descriptions that are truly exquisite; the story is at times darkly passionate and possesses in an eminent degree a most weird, tragic and tender beauty.

This volume is going to be followed by two others; 2, "With Cortez in Mexico," and 3, "With Pizarro in Peru," both novels which partake of the excellence of the former volume. These three books form a set that ought to be in every Amer-

BUFFALO LITHIA SPRINGS.—HOT SPRINGS.

TWIN REMEDIES IN

GOUT, RHEUMATIC GOUT AND RHEUMATISM.

WHAT THE HOT SPRINGS PHYSICIANS SAY:

Dr. Algernon S. Garnet, Surgeon (retired), U. S. Navy, Resident Physician, Hot Springs, Ark.:

"My experience in the use of BUFFALO LITHIA WATER is limited to the treatment of **Gout, Rheumatism** and that hybrid disease, **'Rheumatic Gout'** (so called), which is in contradistinction to the **Rheumatoid Arthritis of Garrod.**

"I have had *excellent results* from this Water in these affections, *both in my own person and in the treatment of patients for whom I have prescribed it.* Of course, the remedial agent is its contained **Alkalies** and their solvent properties.

"Hence it is a **prophylactic,** *as well as a* **remedy in Nephritic Colic,** *and forming* **Calculi** *when due to a redundancy of* **Lithic Acid.**"

The Late Dr. Wm. F. Carrington, Resident Physician, Hot Springs, Ark., Surgeon (retired), U.S. Navy, Surgeon Confederate States Navy:

"BUFFALO LITHIA WATER, Spring No. 2, has signally demonstrated its remedial power in **Gout, Rheumatic Gout, Rheumatism, Uric Acid, Gravel** and other maladies dependent upon the **Uric Acid Diathesis.**

"*It not only eliminates from the blood the deleterious agent before it crystallizes, but* **dissolves** *it in the form of* **Calculi,** *at least to a size that renders its passage along the ureters and urethra comparatively easy.*"

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"*Send me five cases* BUFFALO LITHIA WATER, Spring No. 2. I have made use of this Water for **Gout** *in my own person and prescribed it for patients similarly suffering, with the most decided beneficial results. I take pleasure in advising* **gouty** *patients to these Springs.*"

Dr. G. W. Lawrence, Resident Physician, Hot Springs, Ark.:

"I prescribe BUFFALO LITHIA WATER with great confidence, in all diseases of **Uric Acid Diathesis.** When traveling, it is my habit to use this Water as a guarantee for getting a pure water."

Dr. L. S. Ordway, Resident Physician, Hot Springs, Ark.:

"I have used BUFFALO LITHIA WATER Spring No. 2, very extensively and successfully in my practice, in cases of *Rheumatism of the Arthritic* form, especially when complicated with weak, inactive *Kidneys, with inclination to Bright's Disease.* I have also found it an efficient remedy in *Albuminuria of pregnancy.*"

DR. JOHN A BLAYDES, Pres. HOT SPRINGS MEDICAL AND SURGICAL INSTITUTE, ARKANSAS. DR. R. O. BLAYDES, Sec'y.

THE STATEMENT OF DR. BLAYDES:

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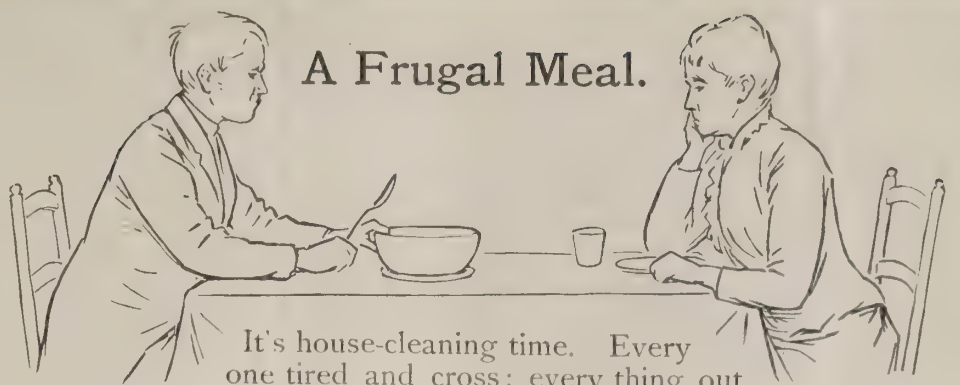
A Frugal Meal.

It's house-cleaning time. Every one tired and cross; every thing out of place and wrong end foremost. No time to fool away in cooking; no fire, probably; no appetite, perhaps; no comfort, certainly.

No Pearline—that's the cause of it. A little **Pearline**, when you're cleaning house, makes the whole thing smooth and easy. With anything about the house that isn't hurt by water, you can save time and hard work by using **Pearline**. You won't have to use that rub, rub, rub, in getting the dirt off. And that saves other things, besides your labor. Your paint, for instance.

Beware Peddlers and some unscrupulous grocers will tell you "this is as good as" or "the same as Pearline." IT'S FALSE—Pearline is never peddled, if your grocer sends you an imitation, be honest—*send it back.* 318 JAMES PYLE, New York.

ican's library, for they impart early American history pleasantly, are healthy in tone and brightly illuminate the times in which the scenes are laid.

They also announce for immediate publication as No. 18 in their Rose Library, MONEY. By Emile Zola 1 vol. 12 mo. With portrait and other illustrations. Cloth, $1.00; paper, 50 cents.

This most powerful novel treats of money and its votaries. It is, as its name implies, a record of the effect produced upon the human race by its greed for gold. It represents certain capitalists, or rather speculators, who, instead of being gamblers out and out are so under another name, in an apparently legitimate way are extremely enterprising with other people's money, start banking institutions, steamship companies, etc., at first making lots of money, paying out high dividends, but finally draw out or lose all in speculations recklessly planned. When the crash comes of course thousands of innocent people suffer by it, and this Zola, a novelist of a most extraordinary fecundity and force, pictures in a novel which must be considered wonderful, as it is so true to life. In every respect it is a masterly work, in which a difficult subject is handled with the utmost skill, and which sustains the most unflagging interest to its last page.

ARENA FOR OCTOBER.

The contributions to the October *Arena* are varied, and able. In this issue Hon. Thomas E. Watson, who created such a furor in the House of Representatives by his charge of drunkenness among Congressmen, appears in a thoughtful paper on the "Negro Question in the South." He does not believe in Federal interference, but shows that the only solution of the problem is a division of the vote among white and black. Congressman Brosius discusses in a thoughtful manner the plan of limiting the number of the House of Representatives. Rev. Thomas P. Hughes, D. D., answers Ibn Ishak in a masterly contribution entitled, "Has Islam a Future?" Under the title, "The True Character of Christopher Columbus," Mr. A. P. Dunlop gives a severe arraignment of Columbus, quoting numerous authorities. This paper is refreshing after the flood of extravagant encomiums which has lately surfeited even hero worshipers. One of the most notable features of this issue is the closing of the Symposium on Woman's Dress, prepared under the auspices of the National Council of Women of America. The papers in this issue are by Lady Harberton of England, Octavia W. Bates, Ph. D , Grace Greenwood, and Mrs. E. M. King. The editor also supplements this symposium with a striking editorial entitled, "The Next Step Forward for Women." This paper is illustrated. Among other leading features of this issue should be mentioned the superbly illustrated sketch of Edward Hugh Sothern, the brilliant young American actor, the continuation of the Bacon-Shakespeare discussion, a striking paper on Astrology, by Edgar Lee, of London, and a paper by Sylvester Baxter on "The Social and Economic Influences of the Bicycle."

The *Arena*, besides being the most fearless and aggressive of our reviews, is always varied and exceedingly interesting. It combines the intellectual wealth and profound thought of the serious review, with the entertaining qualities of the popular magazine.

REMINGTON BROTHERS' NEWSPAPER MANUAL, 1892.

We have received a copy of the sixth annual edition of the Newspaper Manual of Remington Brothers, of Pittsburgh, Pa., and New York. This handsomely bound volume is one of the most concise, convenient and reliable works of its kind, and from its handy arrangement of the greatest value to the general advertiser as a reference work and in the compilation of his lists.

The contents include complete lists of all newspapers and magazines in the United States and Canada, with their days of issue, politics, and circulations, and properly classified lists of the principal dailies and weeklies, and the best agricultural, religious, scientific, and trade publications and leading magazines. Remington Brothers recognizing the principle that the business man desires an easy-get-at-able reference work, have arranged all the lists upon the alphabetical plan both as to States, towns in the States, and the several papers in the town. In the general list population is given of each town and of the county in which it is located, and county seats are indicated by a special mark.

We have tested the accuracy of the Manual, and find it singularly free from errors. To advertisers especially it must prove invaluable, containing as it does every particular necessary for the general description of each newspaper, and so arranged as to admit of the readiest reference.

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Dr. T. H. Andrews, Jefferson Medical College, Philadelphia, says of

Horsford's Acid Phosphate.

"A wonderful remedy which gave me most gratifying results in the worst forms of dyspepsia."

It reaches various forms of Dyspepsia that no other medicine seems to touch, assisting the weakened stomach, and making the process of digestion natural and easy.

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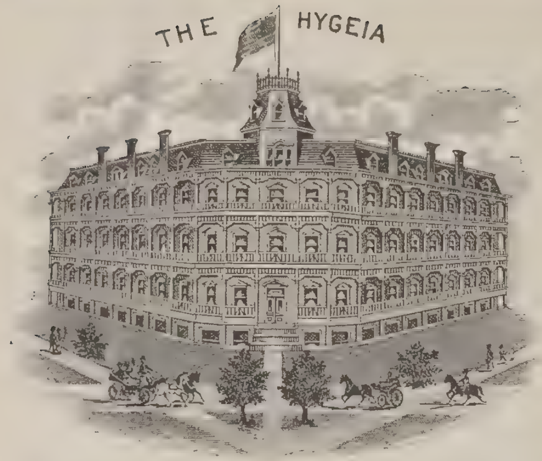

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Hall's Catarrh Cure is taken internally, acting directly upon the blood and mucous surfaces of the system. Testimonials free. Price, 75 cents per bottle. Sold by all druggists.

◆

FOR TIRED BRAIN

Use Horsford's Acid Phosphate.

Dr. O. C. Stout, Syracuse, N. Y., says: "I gave it to one patient who was unable to transact the most ordinary business, because his brain was 'tired and confused' upon the least mental exertion. Immediate benefit, and ultimate recovery followed."

◆

AN HONEST SUBSTITUTE.

There are thousands who would like to enjoy the luxury of drinking coffee, but are prevented by hygienic reasons. Others again who may allow themselves the luxury are afraid that the taste will grow up in them and they become "coffee fiends." A few, unfortunately, cannot afford the luxury. For all such a new article just introduced in this market, Hillis' Plantation coffee substitute is a boon. It possesses the merit of being a healthful vegetable preparation which very closely resembles real ground coffee. It looks, smells, tastes, and draws very much like the genuine article and can be mixed with it in any proportion. Coffee possesses many characteristics in being a warm stimulant, but as it contains the powerful alkaloid caffein many people cannot drink it. This substitute possesses all the good qualities, but not the caffein. It costs only about one-third as much as coffee. We have carefully examined this article under the microscope and submitted it to the action of various chemical reagents, and can truthfully assure the reader that there is nothing contained therein that can be in any way injurious to health. It will keep fresh and strong in any climate or for any length of time without deterioration. It is made in three grades, fine granulate No. 12, medium No. 10, and coarse No. 8, which vary in strength from 30 to 80 per cent of that of genuine coffee, and is sold in barrels and casks holding from 100 to 800 lbs. It is especially recommended to dyspeptics who cannot drink coffee. The best thing is to convince yeurself by sending for a sample to the makers, the Hillis Plantation Coffee Company, 521 Washington street, New York.

WHAT TO SAVE,

And how to save it, are subjects which interest all prudent housewives. This information is given in "Ayer's Home Economies," containing one hundred recipes for using odds and ends from the table and market. It is a book especially valuable to young housekeepers, and will afford many new and useful hints even to those more experienced. "Ayer's Home Economies" mailed to any address, on receipt of a two-cent stamp, by Dr. J. C. Ayer & Co., Lowell, Mass.

◆

INCREASED ROOM NEEDED.

Stewart Hartshorn is again forced to enlarge his manufacturing facilities. A large brick factory building is nearly completed in Muskegon, Mich., and contracts are being given out for another of similar proportions in East Newark, N. J. The latter is to be connected by an iron bridge of sixty feet span to the main factory buildings across the street.

The wire mill is running all night as well as day, producing the thousands of pounds of wire necessary in the production of the daily output.

Three factories, after many enlargements, are running full to meet the demand that was filled by the comparatively small original plant a few years ago.

◆

THE LAND AND WATER OF THE GLOBE.—Mr. John Murray, a member of the Challenger expedition, and one of the highest living authorities on oceanography, has recently been delivering some lectures in Boston of peculiar interest to scientific men and students. Among many special papers of great value which have been published by Mr. Murray is one relating to "The Height of the Land and the Depth of the Ocean." In this learned monograph it is estimated that the area of the dry land of the globe is 55,000,000 square miles and the area of the ocean 137,200,000 square miles. He estimates the volume of the dry land above the level of the sea at 23,450,000 cubic miles and the volume of the waters of the ocean at 323,800,000 cubic miles. He fixes the mean height of the land above the sea at 2,250 feet, and the mean depth of the whole ocean at 12,480 feet. Of course these results are only approximate, but they help to render our ideas of these matters more definite.

In his paper Mr. Murray also estimates that the rivers of the world carry into the ocean every year 2½ cubic miles of sediment. To this must be added the matter carried to the sea in solution, which is estimated at 1·183 miles of matter. Together, then, the amount of matter carried through the land each year is 3·7 cubic miles. It would thus, according to this calculation, take 6,340,000 years to transport the whole of the solid land down to the sea.

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WORLD BUILDING,

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THE ADJUSTED RATE PLAN

is original with this Company and is an entirely new feature in life insurance. It enables the Company to provide insurance to persons who are

FIRST-CLASS RISKS AT LOWER RATES

than any equally sound institution that places all its risks at one rate, wholly ignoring the importance of charging each policy holder a premium equitably proportioned to the risk assumed. This is the

MOST EQUITABLE SYSTEM OF LIFE INSURANCE

ever offered to the public, as the rate charged is directly in proportion to the risk assumed rather than an equal rate for all. While none but those safely insurable are accepted the

MERIT OF THE RISK ESTABLISHES THE RATE OF PREMIUM.

The principle is similar to that applied to fire insurance, the premiums being regulated in accordance with the nature of the risk. The Adjusted Rate Plan avoids also the

UNREASONABLE AND PURELY ARBITRARY TECHNICALITIES

which have so long worked injustice to applicants and agents, and while it does not contemplate in any sense the acceptance of an applicant not safely insurable, it recognizes the fact that a large number of risks usually declined can be safely insured at an increased premium. It is

A WISE, JUST AND COMMON-SENSE SYSTEM

and unquestionably the fairest and most equitable one known, and cannot fail to impress any thoughtful, unprejudiced man as being the correct system of life insurance.

This company is doing its principal business in the State of New York—its home State. Its growing popularity with the public is best evidenced by the large amount of insurance written. During the present year since adopting the Adjusted Rate Plan its ***business has increased four hundred per cent*** over that of last year.

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ITS EXPENSES ARE MODERATE,
ITS POLICIES ARE MOST LIBERAL,
ITS PAYMENTS ARE PROMPT.

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W. G. LORD, Secretary.

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Liberal Contracts. Unequaled Opportunities.

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OR LIQUID PEPPER.

IS SIMPLY THE PULP OF THE RIPE PEPPER EXTRACTED BY PRESSURE.

The seed of this Pepper was obtained from Central America, and by careful cultivation in Louisiana for many years has been so improved in strength, flavor and aroma as to have become a new variety of Red Pepper, superior to all others. The pulp is so handled as to retain all the flavor, strength, aroma and color of the ripe fruit, and to keep unimpaired in any climate. It excites the appetite, promotes digestion, and is pronounced by connoisseurs to be the finest condiment in the world. For medicinal purposes it recommends itself by its purity, strength and diffusible form.

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TO THE CONSUMER!

"PAVONIA BEER."

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ENTIRELY FREE FROM THE PUNGENT TASTE OF THE ORDINARY BEERS.

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Spring time is Daisy time,
Nice things come together
Summer time is Rose time,
Fair and golden weather;
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Forest trees a-flaming;
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Ice and snow
a-reigning.
Would you
have it always be,
Rose and Daisy time?
Always in your dear home nest
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Buy the Powder named below
And find without a doubt,
Daisy time and Rose time
Within if not without.

For all seasons **Gold Dust Washing Powder.**

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Agents Wanted. Address **DR. JUDD, Detroit, Mich.**

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NERVOUS HEADACHE AND BRAIN FATIGUE

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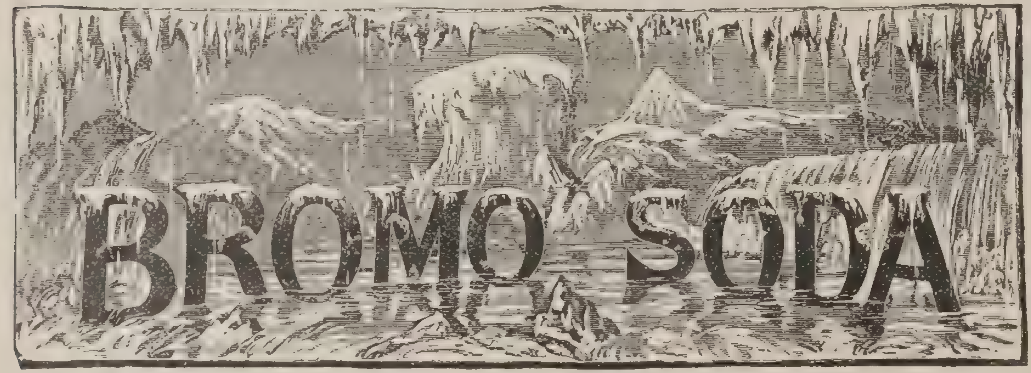

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DOSE.—A heaping teaspoonful in half a glass of water, to be repeated once after an interval of thirty minutes, if necessary. Each teaspoonful contains 30 grs. Bromide Sodium and 1 gr. Caffein.

It is claimed by some prominent specialists in nervous diseases that the Sodium Salt is more acceptable to the stomach than the Bromide Potassium. An almost certain relief is given by the administration of this Effervescing Salt. It is also used with advantage in INDIGESTION, DEPRESSION following alcoholic and other excesses, as well as NERVOUS HEADACHE. It affords speedy relief for MENTAL and PHYSICAL EXHAUSTION.

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IF you wish to advertise anything anywhere at any time write to **GEO. P. ROWELL & CO.,**
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BUT BUY A
Bickford Family Knitter,
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SILVERGLOSS STARCH MANUFACTURED BY T. KINGSFORD & SON
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FOR
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WILL PLEASE YOU EVERY TIME.
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NOVEMBER 1, 1892.

CONTENTS.

Page
Adulteration ... 325
Adulteration of Pepper ... 325
A Semi-Centennial ... 327
Behavior of Antiseptics Toward Salivary Digestion ... 325
Cakes for Breakfast and Tea ... 322
Disinfecting Power of Lye ... 325
Do You Carry a Potato or Buckeye? ... 329
Editorial ... 321
The Discovery of America—Vaseline—The Oleo Fight—It's English, You Know.
Fruit Eating ... 325
Glue Not Gelatine ... 326
Household ... 322
Hygienic ... 324
Medical ... 323
Microbes as Chemists ... 324
Miscellaneous ... 326
Oatmeal ... 322
Petroleum ... 326
Public Duty of Physicians ... 323
Soft Soap ... 323
Stuttering and Stammering ... 323
The Danger of Ready-Made Garments ... 324
The Hydrometer ... 327

THE DISCOVERY OF AMERICA.

When we published the editorial under this heading in our number of October 15th, we seemed to stand alone in our opinion, but since then new and very strong batteries have been opened upon the Columbus canonizers. We will give a few specimens from which the readers of the AMERICAN ANALYST can judge how far we were justified in our effort to set the popular misunderstanding straight.

DR. PARKHURST IN BOSTON.

BOSTON, Oct. 17.—At the Trinity M. E. Church, Charlestown, yesterday, Rev. Dr. Parkhurst, editor of the *Zion's Herald*, delivered the address on "Columbus," which was a sort of a bombshell to the assembled congregation as the reverend gentleman assailed the character of the discoverer of America.

Dr. Parkhurst said in brief: "Columbus discovered America in 1492. America has discovered Columbus in 1892, and the results of this discovery are grievously disappointing. Columbus died without a knowledge of the great world he had discovered, and we have four centuries been idolizing him without knowing any more about him than he did about the world he discovered.

"I am exceedingly sorry to be obliged to say that Columbus will not stand the test of close scrutiny, and history shows that he does not deserve the admiring recognition he has been receiving for four centuries. I do not like to say it, but I cannot do otherwise with loyalty to the truth.

"When I commenced to study him I was very much prepossessed in his favor, but investigation shows me that at heart he was a very bad man. In fact, I think him the most consummate liar I have ever found in the history of the country. He made lying a fine art and practiced it all his life. He professed to be profoundly religious, when as a matter of fact he was very far from a saint.

"You can study his whole life, and you will find that it was one of fabricature and greed for gold. He not only lied himself to Ferdinand and Isabella, but he compelled his crew to lie also. It is savage but true, and it is the truth we are after. Lying was not his worst trait, either, for he was the first to establish slavery in America, which cursed the new country for centuries.

"He was not a benefactor, for all that he did was for gold. He would not sail on his voyage until he was made an Admiral by the King and received a promise of fabulous remuneration."

A NEW HAVEN MINISTER TOO.

NEW HAVEN, Oct. 17.—Rev. J. Lee Mitchell, of the Grand Avenue Congregational Church, preached a decidedly sensational sermon on Columbus yesterday. He thanked God that Columbus was not the hero of the American people. Columbus found the dirt on which America stands, but he did not mean to.

America, as a blessing to herself and the Old World, was discovered by Puritans. Columbus was a great man, but so is Jay Gould, the railroad wrecker. If robbers are Christians, he said, Columbus is a saint. He put up the first cheats on the gentle, worshipful natives; he loaded the first slave ship.

The speaker protested against Columbus being held up as a hero to the American children. It is well enough to celebrate the anniversary, it is truth to teach that Columbus did it, and it is wise to show the difficulties he overcame, but he is not responsible for a single blessing the world has to-day. The reverend gentleman continued in this strain at great length.

Space fails us in the present article to go any further into the real life and works of Columbus: we shall do so hereafter. It may suffice to say that much printer's ink is being used just now in giving details of the life of this man; much of it follows in the beaten path of adulation and biased glorification, but a great deal has been said on the other side and generally by those writers who cater for the more intellectual and thinking classes.

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VASELINE.

The ridiculous claims of the Cheesebrough Manufacturing Company as to the ownership of the word "Vaseline" have been before the public for many years. They have blustered and threatened, and by their silly actions have alienated any friendly feelings the trade or the press might have shown. They evidently have tried this same game of bluff in Germany, but will be very severely sat down upon, there. The Cheesebrough Company, in their new German price-lists, call particular attention to the fact that they claim the word vaseline as their property, and infringements on their rights will be prosecuted under the German trade-mark act. The *Pharmaceutische Zeitung*, in reporting this fact, appears to question the company's right to the word, although it admits that the manufacturers of petroleum jellies are in the habit of using the word constantly It suggests that the German product is at least as good as the Cheesebrough vaseline, and it further points out that the German Pharmacopœia, as far back as 1882, gave the word vaseline as a synonym of unguentum paraffini. It further states that the German trade-mark law only protects marks and not words, and altogether indicates that the chances of the company establishing their claim in Germany are not very hopeful.

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THE OLEO FIGHT.

The big fight between the large makers of oleomargarine and the State of Massachusetts has come in a new phase. The suit has figured as that of Chas. Harrington, represented by the Attorney-General against Joseph Friedman et al.

Last week an injunction was filed in the United States Circuit Court of Massachusetts against Chas Harrington in behalf of Joseph N. Friedman et al. by Henry M. Ayars and R. M. Morse, Jr. They said that the business of the oleomargarine manufacturers should not be interfered with by the State while makers of butter color and otherwise adulterate their products They hold that instead of oleomargarine being colored to imitate butter, butter is colored to imitate the more attractive lines of oleomargarine.

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IT'S ENGLISH YOU KNOW.

Educated people using the same language do not always use the same words to express similar ideas nor do they always call an object by the same name. As an illustration of this we will give you a few such instances. The American says "depot," the Englishman says "station." The American says "ticket-office," the Englishman says "booking office." The American says "baggage," the Englishman says "luggage " The American says "I guess," the Englishman says "I fancy." The American says "crackers," the Englishman says "biscuit." The American says "checkers," the Englishman says "draughts." The American says "yeast," the Englishman says "barm." The American calls the close of the meal "dessert," the Englishman calls it "sweets." The American says "sexton," the Englishman says "doorkeeper." The American uses the word "clever" to describe geniality and kindness, the Englishman uses the word "clever" to describe sharpness and talent.

TO THE NEW ENGLAND GROCER.

We do not admit your right to dictate to us how we shall run this journal, or when we shall publish items of information to our readers, but to enable you to abide your soul in patience we will say that we are gathering evidence and have been quite successful in doing so. When we are good and ready we shall publish some astonishing facts about the peculiar doings of some of the sub-officials of your Board of Health, and assure you that our proofs will be such that you will gladly help us in the further prosecution of the matter.

HOUSEHOLD.

CAKES FOR BREAKFAST AND TEA.

JOHNNY CAKE.—One teacupful sweet milk; one teacupful buttermilk; one teaspoonful salt; one teaspoonful soda; one teaspoonful melted butter. Enough meal to enable you to roll it into a sheet half an inch thick. Spread upon a buttered tin, or in a shallow pan, and bake forty minutes. As soon as it begins to brown, baste it with a rag tied to a stick and dipped in melted butter. Repeat this five or six times until it is brown and crisp. Break—not cut it up—and eat for luncheon or tea, accompanied by sweet or buttermilk.

FLANNEL CAKES.—One quart milk; three tablespoonfuls yeast; one tablespoonful of butter, melted; two eggs, well beaten; one teaspoonful salt. Flour to make a good batter. Set the rest of the ingredients as a sponge over night, and in the morning add the melted butter and eggs.

SOUR MILK CAKES.—One quart sour or "loppered" milk; about four cups sifted flour; two teaspoonfuls soda, dissolved in boiling water; three teaspoonfuls molasses; salt to taste. Mix the molasses with the milk. Put the flour into a deep bowl, mix the salt through it; make a hole in the middle, and pour in the milk, gradually stirring the flour down into it with a wooden spoon. The batter should not be too thick. When all the milk is in, beat until the mixture is free from lumps and very smooth. Add the soda-water, stir up fast and well, and bake immediately. "Loppered" milk, or "clabber," is better than buttermilk.

GRAHAM CAKES.—Two cups brown flour, one cup white flour; three cups sour or buttermilk; one full teaspoonful soda, dissolved in hot water; one teaspoonful salt; one heaping teaspoonful lard; three eggs, beaten very light. If you use sweet milk, add two teaspoonfuls cream-tartar. Bake as soon as they are mixed.

WAFFLES.—Two cups milk; two eggs; three cups flour; one teaspoonful cream-tartar; one-half teaspoonful soda; one saltspoonful salt; one tablespoonful melted butter. Sift the cream-tartar into the flour with the salt. Dissolve the soda in a little hot water. Beat the eggs very well. Add the flour the last thing. If the batter is too stiff, put in more milk.

CORIANDER COOKIES.—One cup butter; three cups sugar; one cup "loppered" milk or cream; four eggs; seven cups flour, or just enough to stiffen into a *rollable* paste; two tablespoonfuls coriander seed (ground or beaten); one tablespoonful soda, dissolved in boiling water. If you use sweet milk, add two teaspoonfuls cream-tartar. You may substitute caraway for the coriander seed.

OMELETS.

With the desire to satisfy many readers who have requested information on the subject, we give some valuable recipes for omelets and for several other dishes. The first thing to do in making omelets is to get the proper sort of pan. Always beat the yelks and whites together, and to every egg add a tablespoonful of hot water after they have been beaten. Have the pan on the stove with the butter melted and hot, but not browned. Then pour the eggs in and stir continually with a fork or knife so as to cook the whole as nearly as possible at the same time. It must be done quickly and without taking the pan from the fire. When done fold by running the knife under the part of the omelet nearest the handle of the pan and turn that part over the other part, so as to nearly double it.

Then take an oval dish in your other hand and place it on the edge of the pan and flop the omelet into the dish so that it doubles up and looks sightly. This is a plain omelet. All others are made by adding the ingredients after the eggs are turned into the pan.

SPANISH OMELET.

Put a large tomato, a small green pepper, half a small onion, two sprigs of parsley and a bit of celery in a chopping bowl, chop fine and pour into a stewpan. Stand on the stove till heated through and then stir into the omelet as soon as it is put into the pan.

OMELET SOUFFLE.

Add to six eggs four tablespoonfuls of pulverized sugar and stir till dissolved, then add a few drops of any flavoring desired. Beat to a stiff froth, put in a buttered pan, smooth over the top with a knife, powder with sugar, put in a hot oven and bake quickly.

A DELICIOUS BREAKFAST DISH.

Put a pint of water in a saucepan with a heaping tablespoonful of butter. Put it on the range and when it boils thicken with a large tablespoonful of flour. Have some smoked beef shredded or cut in small pieces, and drop into the stewpan after the milk has been thickened and let the beef cook only two minutes. Pour into a deep dish, and serve at once.

BAKED APPLES.

Take the cores out of six or eight fine, large, sour apples, place them in a baking pan, put a lump of sugar on top of each apple and put a few lumps between the apples. Then fill the pan with water, put in the oven and bake. When done, take each apple out carefully, place them on a deep glass dish, pour the syrup over them and allow them to stand where they will get ice cold. Serve with whipped cream.

OATMEAL.

ERRONEOUS IDEAS RESPECTING THE PECULIAR EFFECTS OF DIET.

Oatmeal is popularly supposed to be hygienically impeccable. But it is highly fermentable, and demands a tolerable vigorous and rapid digestion to dispose of it before souring. Dr. Benjamin Richardson gives numerous examples of heartburn caused by an oatmeal diet, which nothing could relieve until that article was banished, and which returned immediately if the use of it was resumed. He does not mention, as far as we observe, whether the oatmeal was thoroughly cooked or not, in these cases. That condition would make a great difference, and the custom of hasty cooking is so general that much of the evil effect noted may very likely have resulted from that cause.—*Sanitary Era.*

No article of diet has been so much misunderstood and misused as oatmeal, and no article of food has so much that really can be lain at its door as a factor of the very troubles it is intended to relieve, as no one food that is so used—that is, in a semi-hygienic and semi-medical sense, causes so much dyspepsia, flatulence and general disturbance. Very few who do use it, understand the nature or physiological requirements of the food. It is not an uncommon occurrence to see invalids gulping down bowlfuls of milk and cream saturated, or rather holding in suspension their own bulk of oatmeal gruel, under the insane delusion that they are swallowing concentrated bone, muscle and other animal tissues which is to convert them into modern Samsons.

Poor decrepit invalids with but little air capacity, fill up on such a diet and then wander about disconsolately under the delusion that they are chronic dyspeptics because they are bloated up like young balloons, and are resonant as bass drums, their litttle bloated abdomens straining in every direction, hardly enabling them to take breath, and the distended stomach and intestine unable to close down upon and digest even a juicy steak, because that particular piece of steak has to meander down mechanically—like a piece of drift wood in the center of a stream—fermenting, because undigested, to add its quota to the general flatulency and disturbance in some lower part of the intestinal canal. It seems never to occur to these misguided invalids that graminivorous animals *grind their own grists* and well and thoroughly insalivate the mass; while they, on the contrary, saturate the already ground mass with sugar, cream, butter and milk, and run it down into their stomach as if their mouth, jaws, teeth, salivary glands, masticatory muscles, etc., were only the open end of some flume with the stomach for a reservoir.

It is a mistake to imagine that the brawny Scots are the pure product of oatmeal—brawny Scots, the Scots or Caledonians of Ossian, existed long before oatmeal was made, and not very small or tame Scots were they either. It would be as rational to accuse the potato and potheen for the undisputable pugnacity, turbulency and hardiness of the modern Hibernians, when we know full well that the ancient Hibernians or the Hiberni-Sylestris of Bacon, quaffed only saffron tea and feasted on the flesh of the wild boar—which, by the way, was the real exterminator of snakes in Ireland—and of the wild deer that there then abounded. To believe that a potato and potheen diet would so build up the descendants of the Puritans or the descendants of the Dutch of New York and infuse them with that peculiar political cohesiveness and sagacity as well as persistency that would enable them to wrest the municipal management of Boston and New York from the hands of the descendants of Shan O'Neal, would be as silly and unproductive of any other result than to land most of the experimenters into the inebriate and insane asylums or into the graveyards through Bright's disease or hobnailed livers.

It is just as silly for one to undertake to become an Irishman through a potato diet as it would be to try to become a Southern Frenchman or a seaboard Italian by saturating oneself with olive oil and garlic—and it is as silly to try to turn oneself into a brawny Scot by bloating up on oatmeal. Were one to live the life of a Scotch Highlander, roam over heather clad and sea moistened atmosphered hills until he had the appetite and faculty for sleep of a cannibal, then he might eat his raw oatmeal, and in a few generations he might turn into a brawny Scot and compete at the Caledonian or the Queen's games; but the poor invalid who needs pepsine and cascara sagrada or a course of bitter waters to keep his communications open had better leave oatmeal alone. Take that which will not bloat you up. We all remember that Dr. Johnson was an inveterate hater of the Scotch, and that on one occasion whilst reflecting on the oatmeal diet of the Scotch, he remarked that in England they fed their horses on oats, upon which the ready Scot answered that that was the reason that they had such fine horses in England and such fine men in Scotland, an answer, which we are told for once had the effect of silencing the great Johnson As we have said, however, it is not oatmeal alone that makes the giants of the Scotch Grays or the giants that march beneath the nodding plumes of the famous Black Watch —the oatmeal is a mere circumstance or coincidence. It is claimed that the British few conquered the India's millions, because the former are beef eaters and the latter feed on rice and religiously abstain from flesh. If the principle holds good, the bull should be devoid of that courage that has passed into a proverbial expression, denotive of the fiercest, unflinching and persistent courage—a quality which coupled with its name, has given to the fiercest dogs its special designation and which also conveys the idea of the aggressive push of the Anglo-Saxon race.

SOFT SOAP.

The essential difference between soft and hard soaps is that in the former potash is the alkali used in saponification, while in the latter, soda is employed. A potash soap always remains soft. It is formed by boiling any fat with caustic potash. On a large scale the caustic potash is prepared by adding lime to a solution of the impure carbonate of potassium as found in commerce under the name of potash. The lime removes the carbonic radicle and the resulting carbonate of lime precipitates, leaving potassic hydrate (caustic potash) in solution. To a suitable quantity of this lye heated to boiling, the grease is added in small portions at a time until the mass when cooled and examined exhibits the proper appearance.

The caustic potash can be had in the market already prepared, and with it the lye can be made by simple solution, the lime, of course, not being needed. Of this purified article about eight ounces are sufficient to saponify three and a half pounds of grease.

WHAT IS WORSTED.—A woolen yarn is soft and fluffy, while a worsted yarn is hard and firm, possessing a much greater tensile strength. In the woolen yarn the fibers are tangled and crossed, and drawing is avoided as much as possible in preparing the raw material for spinning, so as to leave the natural curvature of the fibers undisturbed, and afford the greatest freedom of action to the felting quality of the wool. In worsted yarns the object is to obliterate the felting quality and to secure elongation and parallel arrangement of the fibers. In the early days of the manufacture the best results were only attainable in worsted yarns from long-fibered fleece. English wools are commonly called combing wools for this reason, and it was the possession of this fleece of an unrivalled quality which made England the birthplace of worsted manufacture, and has kept it at the front in this process. One of the results of improved machinery has been to remove any distinctions between woolens and worsteds, based upon the difference between the wools employed in the two processes. Short wool of merino blood can now be combed as successfully as the longer staple. The processes of treatment, however, continue to differ radically. This difference is primarily created by the combing machine, an instrument unknown to wool manufacture proper.

MEDICAL.

PUBLIC DUTY OF PHYSICIANS.

THE PHYSICIAN SHOULD BE APPRECIATED.

Herodotus tells us that the Babylonians had no physicians, that when anyone was sick he was carried into the streets and placed where the greatest number of passers-by could see him; everybody was bound to stop and consider the case, and if an individual paused who had suffered in what seemed to him a similar manner, he was compelled to explain the method of his cure. There is no necessity for this sort of thing now, although a large section of the public enjoys nothing more than suggesting remedies for all sorts of complaints, and dabbling generally in a little physic. But there never was a time in the history of civilization when there was greater need that everybody should recognize the fact that he owes a medical duty to his neighbor which he is bound to perform.

Dr. George Gould recently delivered an address in Philadelphia on the subject "Everybody's Medical Duty," in the course of which he bitterly complained of the way in which the public at large leaves the medical profession to struggle under its Atlantean world of deputed responsibility. The indifference, the want of sympathy, to say nothing of the actual opposition experienced by those whose work it is to contend against disease, is as discouraging to our profession as it is disgraceful to our age of science. There never was a body of men animated by a spirit of devotion and self-sacrifice such as characterizes the medical practitioners of the age. How is this devotion and self-sacrifice recognized? The quacks, the charlatans, and the knaves make fortunes, while educated and conscientious practitioners are expected to do a large amount of work for nothing. Up to now the work of the physician has been the cure of sick persons. Now it has largely become the prevention of sickness. Patients will co-operate more or less in the work of being healed of their diseases, and are not wholly ungrateful to the healer, but those who are in daily danger of becoming patients will do little or nothing to assist the men who are fighting to keep disease from their door. They laugh at bacteria and mock at microbes; carry the germs of disease in their clothes from house to house; sweep up the dust of the streets in their trailing skirt; take little or no pains to disinfect the excreta from such infectious cases as occur in their own homes; oppose with all their influence the erection of hospitals for infectious diseases in their midst, careless as to what becomes of the patients so long as they pass not by their own doors; impede the efforts of medical officers of health and inspectors of meat and other food to improve the hygienic condition of our towns and the quality of food we consume; disregard the authoritative condemnation of the corset, and in a multitude of ways help to make the work of the modern physician as hard as possible. Chaldea and Babylon could have taught us this, at least, that everybody is bound to help the State to the utmost of his power in the battle against disease and death.—*British Medical Journal.*

STUTTERING AND STAMMERING.

THEIR CAUSES AND CURE.

These two important defects in enunciation were discussed by Dr. Eich in a lecture delivered before the Medical Society of Munich, from which we take the following abstract: Stuttering and stammering result from the same causes, in this sense that a child endowed with a lively imagination and an active intellect who experiences a natural difficulty in speaking, when 5 to 7 years old, will always stutter, while another child of a more quiet temper and of slow intellectual movement will stammer, all other circumstances being equal.

A stutterer repeats three to four times the same consonant, v. g., d, d, d, k, k, k, p, p, p, without reaching the following vowel; a stammerer remains mute in case the word which he has to say begins with a vowel. Both defects consist exclusively in a difficulty of pronouncing the vowel and are always of a psychical nature, while other difficulties in pronouncing certain determined consonants are of a merely physical nature.

The first origin of these defects can be traced to the earliest childhood. Since children learn speaking by imitation, it is easily explained why in a family in which one member is a stutterer, some of the children are stricken with the same affection.

One of the most important causes of stammering and stuttering consists in a disproportion between the fauculty of thinking and the faculty of speaking, the operation of thinking being performed either too rapidly or too slowly.

Strong psychical excitations, such as violent fright on account of fire or sudden fear of death, a fall into the water, severe diseases, trauma, etc., may also give rise to these disturbances of language.

This affection frequently commences with the first attendance at school. Until then the child has played, paying little attention to what happens around; all at once it is transplanted into a new sphere, its intellect receives new impressions which it has to render in a language having little in common with the language to which it was used under the paternal roof.

In a physical sense stammering and stuttering is a perversion of muscular activity; the action of the nerves is not energetic, not correct physiologically in their relation to all the muscular febriles.

In a psychical sense it is an irritation carried into the child's intellect by a wrong education, by harshness of parents or tutors, by ill-advised methods in teaching, rather more by too severe than by too lenient discipline, or by lack of patience, consideration and prudence.

But, whatsoever the first causes of stammering and stuttering may be, the affection is manifested by its direct effect of preventing the patient from striking in his vocal ligaments the tones pertaining to the ideas which he wishes to express by language. He misses this paramount striking in the glottis for no other reason than the fear of stuttering which impedes the sonorous vibration in the vocal ligaments or renders these vibrations too weak and powerless. He is permanently in the condition of some healthy person who is suddenly struck with fright, sorrow or even unexpected delight.

Statistics show that as a rule 3 out of 1,000 persons are affected with this ailment. It is met with in all countries, in all peoples, in all idioms and in all classes of society. It is a curious fact that the female sex is much less liable to be affected with it than the male sex—among fifteen to twenty stutterers there is at the utmost one woman or girl.

Eich subjects the various therapeutical methods applied in the treatment of this disease to a thorough examination. He rejects especially the artificial, unnatural respiratory method which is mostly practiced by incompetent persons and which, far from healing, only leaves injurious results. He equally opposes treatment in institutions because they are not in a position to take sufficiently into account the individual character of the several cases.

Eich's therapeutic method for the treatment of speaking defects is based on the corresponding physiological laws and its principal part refers to sound-formation. In vehement stuttering the disturbance consists chiefly in a too heavy accentuation of the preceding consonant, while too little stress is laid on the following vowel, thus destroying the equilibrium existing in articulate language. The object kept in view by the treatment is to restore this equilibrium, and rapid success is greatly facilitated by making the patient himself understand the real causes of his ailment.

Vehement stammering occurs less frequently and its treatment is much more difficult, because not only vibration in the vocal ligaments is temporarily suppressed, but the resonance necessary for sound-speaking is completely lacking. Eich's method takes these two points into account.

Eich insists that the cause of speaking-defects should not be regarded as a trifling matter, it being necessary very often, besides all other things, to combat a deeply rooted fear of stuttering, the "stuttering hallucination."

Stuttering commencing often in early childhood by way of imitation, the family physician will frequently be in a position to intervene with useful advice. Instead of the usual severity applied to the child, parents should try to tranquillize it and by repeating the correct pronounciation of the word to assist it in learning. By this psychical method much will be obtained.—*Munchener Medicinische Wochenschrift.*

Do You Rizzle?—Do you rizzle every day? Do you know how to rizzle? One of the swell doctors in town says that it is the most wonderful aid to health. "I masticate my food very thoroughly at dinner," he says, "and make sure to have my family or friends entertain me with bright talk and plenty of fun. After dinner it is understood that I am going to rizzle. How do I do it? I retire to my study and, having darkened the room, light a cigar, sit down, and perform the operation. How to describe it I don't know, but it is a condition as nearly like sleep as sleep is like death. I close my eyes and try to stop all action of the brain. I think of nothing. It only takes a little practice to be able to absolutely stifle the brain. In that delightful condition I remain at least ten minutes, sometimes twenty. That is the condition most helpful to digestion, and is that which accounts for animals sleeping after eating. I would rather miss a fat fee than ten minutes rizzle every day."—*Exchange.*

Flatulency.—"The remedy," says Dr. G. B. Wood, "which we have found most effectual in the permanent cure of a disposition to the accumulation of flatus in the bowels, is an infusion made with half an ounce of columbo, half an ounce of ginger, a drachm of senna and a pint of boiling water, and given in the dose of a wine-glassful three times daily."—*Pacific Medical Journal.*

The Wrong Throat.—A quack doctor stood on his wagon at the street corner selling his cure-all. A group of people gathered about him and he undertook to explain to them the anatomy of the throat. "My dear friends," he began, "perhaps you don't know it, but there are two passages that go from the mouth to the stomach. One is called the æsophagus and the other æsophagi. Now the solid victuals go down the æsophagus and liquids down the æsophagi. Over the top of the holes is a cover with a hinge in the middle, and when you swallow beefsteak the little door over the æsophagus flies open, and the little door over the æsophagi drops down, and *vice versa* when you take a drink of coffee" This description proved too much for a farmer who stood on the edge of the crowd. Shaking with laughter, he remarked in a loud tone: "Gosh, but those doors must go flipper flopper when a fellow eats bread and milk."

Stoughton Bitters.—The following is the original formula, as given in the *Codex Medicamentarius* of 1818, under the name "Tinctura amara, dicta vulgo elixirium Doctoris Stoughton": Artemisia absinthium, 24 parts; teucrium chamædrys, 24 parts; gentiana lutea, 24 parts; citrus aurantium (dried peel), 24 parts; croton carcarilla, 4 parts; rheum palmatum, 16 parts; socotrine aloes, 4 parts; dilute alcohol, q. s. ad., 1,000 parts.

Digest with moderate heat for fifteen days, strain off the coarser particles and filter the residuent fluid for use.—*Nat. Drug.*

For Influenza.—Sodii salicylat, grains x; antipyrin, grains x; spt. ammonia co., drachms ss; aq. camphor ad., ounces i.

To be taken every three or four hours.

For Neuralgia.—Quinin. sulph., grains iii; potass. brom., grains 15; aq. chlorof., drachms iv; aquam. ad., ounces iv.

A tablespoonful every three or four hours.—*Brit. and Col. Drug.*

An Effective Mouth Wash.—Thymol, grains iij; benzoic acid, grains xi; tincture of eucalyptus, drachms iij; essence of peppermint, minim x; alcohol, ounces iij.

Pour enough in a glass of water to render it turbid and use as a mouth wash.

Neuralgia.—A simply remedy is to apply grated horseradish to the temple, when the face or head is affected, or to the wrist, when the pain is in the arm or shoulder. Prepare the horseradish in the same manner as for table use.

Soft Corns.—For soft corns, dip a piece of linen cloth in turpentine, and wrap it around the toe on which the corn is situated, every night and morning. It will prove an immediate reilief to the pain or soreness, and the corn will disapper after a few days.

Bleeding at the Nose.—For severe hemorrhage from the nose, try holding the arms of the patient up over the head for five minutes at a time. A small piece of ice wrapped in muslin and laid directly over the top of the nose, will usually give relief.

Meat Preservation.—*Das Rothe Kreuz*, August, 1892, publishes the following method of preserving meat. Raw, fresh meat is dipped into melted, inodorous and tasteless paraffin. The coating it thus receives hardens at once and can be reinforced by repeated dippings. When the meat is desired for food, it is placed into hot water. The coating of paraffin is at once dissolved and, as it floats upon the water, it can be gathered and used again.

Neuralgia.—The following is said to be valuable in obstinate neuralgia (*New Idea*): Take of acetanilide, 1 grain; bisulphite of quinine, 1 grain; cocaine hydrochlorate, $\frac{1}{16}$ grain. Mix. Make into one pill. Dose, one pill every hour, or as indicated.

HYGIENIC.

THE DANGERS OF READY-MADE GARMENTS.

No term, perhaps, possesses a more familiar meaning than the word "parasite." Happy, indeed, would be that animal which, however unconscious of etymology, had not the most intimate relation with it. It seems an almost hopeless task to search for this enviable creature. We should despair of finding it even among the animalcula or in the cell world of histology.

> "So, naturalists observe, a flea
> Has smaller fleas that on him prey;
> And these have smaller still to bite 'em,
> And so proceed *ad infinitum.*"

It is not numbered with the greater beasts. It is not man, whether of high or low degree. The Scottish poet describes, in a humorous poem which is frequently quoted for the pointed lesson it conveys, the career of one well-known parasite which he observed, "plump and gray," strutting on a lady's bonnet at church. A correspondent writing in a somewhat similar vein, confesses of a like experience. She dilates upon "some exceptionally dainty and befrilled hand-made *lingerie*, snowy, spotless, crisp, and garnished with lace," but, she pathetically adds, with "a something half hidden under a tuck." It was, in her servant's *patois*, a "death louse." Need we be surprised that our correspondent adds to her graphic description the warning that all bought underclothing should before wearing be made to undergo "the full laundry process," the more especially since it appears to be quite customary (may the custom early become extinct!) for firms to send even such articles "on approval" to be tried on? What possibilities does this practice open up, not only of parasite migration, but of the actual communication of disease? It is a veritable method of infection and it has doubtless acted as such more often than we are aware of. The only real remedy, of course, consists in its entire discontinuance. Less than this ought not to satisfy a wholesome public opinion. Until, however, the usage of trade in this particular is above suspicion a careful examination and free ventilation of all purchased clothing should not be omitted, while such further measures as "the full laundry process," and, beyond this, antiseptic fumigation, can never be superfluous.—*Lancet.*

MICROBES AS CHEMISTS.

The greatest of all chemists are the microbes. Prof. Herbert McLeod, in addressing the Chemical Section of the British Association, advises all experimental chemists to study them hard. It has long been known that they can with great ease and thoroughness change sugar into alcohol and carbon anhydrate, which no chemist had yet succeeded in doing in the laboratory without their aid. More recently it has been found that they possess the power of changing ammonia into nitrous and nitric acids, which can be done in the laboratory by the aid of great heat, but which the microbes accomplish in the earth at ordinary temperatures. This process of nitrification, which is of such immense importance in the fertilization of the soil, and, among other things, creates the saltpeter which is the essential ingredient of gunpowder, has long been a rather mysterious process. Like many other processes which used to be mysterious, it is found that the microbes are in it. This suggests that they have to do with many other processes in the chemistry of the earth, which enable the economy of nature to go on, and fresh investigation promises to reveal many new facts. Already the pathology of microbes has advanced a step. When it was found that bacteria had to do with certain diseases, it was supposed that the bacteria themselves were the inimical agents, which led to the destruction of the animal tissue and the danger to life. It is now pretty well demonstrated that the bacteria themselves have little to do with it, if they would not carry on their incessant chemical experiments in the human frame. But they, or some of them, have the sinister power of changing the organic matters they come in contact with, by a fresh distribution of their constituent atoms, into other substances which act as virulent poisons upon the whole organism. Thus, it is well known that out of the substance of wholesome animal flesh alkaline matters, called ptomains, are produced, no doubt by the action of these invisible chemists, when the original substance is, as we say, in a state of decay. These ptomains are such deadly poisons that a very small piece of meat in which they have been produced will suffice when eaten to destroy a whole family. If changes like these can be produced in the tissue of the food we consume, no doubt they can also be produced in our own frames under the action of like agents; and thus we are poisoned by the chemistry of the microbes.—*Monthly Magazine of Pharmacy.*

FRUIT EATING.

The value of fruit of various kinds in the dietary of the average healthy individual cannot well be overestimated. When it causes indigestion it is usually because it is taken at wrong times, and not because it is necessarily difficult of digestion. The proper time to partake of fruit whether cooked or raw, is at meals, and not, as is so frequently done, at odd times throughout the day. At this season of the year most persons are the better for restricting the amount of nitrogenous food and indulging in raw fruit and green vegetables. It must not be lost sight of that fresh, uncooked vegetables ought to form a substantial part of our daily food. Cooking though it may facilitate the digestion of fruit, does so at the expense of the peculiar quality of freshness, the absence of which in the long run, gives rise to serious disturbances of nutrition. A belief has gained ground of late years, based on a misconception of certain general statements, that fruit is harmful to persons with a tendency to gout. No doubt if cooked and sweetened by the addition of cane-sugar, dyspeptic disturbances are not unlikely to occur, but no possible drawback attaches to the use of raw fruit in proper quantities and provided it is ripe. The salts contained in fruit are of the greatest value to the organism, and are not obtainable in anything like the amount required from any other source. Children particularly should be encouraged to partake of fruit as part and parcel of their meals, and if proper care be exercised in the selection of a ripe and undamaged article, and in the giving of it at suitable periods, no disturbance of the intestinal functions need be apprehended. In conclusion it is a generally accepted maxim that fruit and alcohol do not go well together.—*Ed. Eng. Med. Press.*

THE BEHAVIOR OF ANTISEPTICS TOWARD SALIVARY DIGESTION.

Under the above title, Professor Weber, of Columbus, O., publishes in the *Journal of American Chemical Society,* January, 1892, the result of tests made under his direction by C. T. Fox. The agents used in the experiments were borax, salicylic acid, calcium sulphate and saccharine. The tests were made with one grain of starch in 15 c. c. of water, and 5 c. c. of saliva, with various amounts of antiseptic, and with varying times, ranging from one to sixty minutes. The effect was determined by estimating the sugar formed with the starch alone, and with the antiseptic added.

It was found that when the antiseptics were present in the proportion of 1 to 210 parts of the mixture, the diastasic action of the saliva was entirely arrested by all these agents during the first five minutes. For the longer times, calcium sulphite was without effect, while borax retarded the action, and salicylic acid and saccharine completely arrested it. These last two agents prevented the action of saliva upon starch when present in the proportion of 1 in 420. Salicylic acid greatly retards the action when present in the proportion of 1 in 840; but not when the proportion was reduced to 1 in 1050. Saccharine showed no effect when the proportion was reduced to 1 in 840. Calcium sulphite failed to retard the action when present in the proportion of 1 in 420. Borax showed a great retarding effect, even in the proportion of 1 in 2100. These experiments were undertaken to determine the effect of the various preservatives for food containing them, and showed that mixtures containing them should not be permitted to be added to articles of food.

THE DISINFECTING POWER OF LYE.

According to the *Revue d' hygiene* for January 20, 1892, Dr. A. Montefusco and Dr. O. Caro have published (*Rivist. internaz. d'igiene*, 1891, fasc. 10, 11) a paper on practical, domestic, and economical disinfection by ordinary lye. After an immersion of twelve hours in a solution of boiling lye, cholera and typhoid bacilli and charbon spores were invariable detroyed. If the solution was kept at a temperature of 20 deg. C., sterilization resulted in six hours; 50 deg. C., one hour's immersion produced sterilization; the spores of charbon were not destroyed in one, two, or less than six hours at a temperature of 100 deg. C., whereas in that time the same result was obtained at a temperature of 25 deg C. The alkalinity of a litre of this solution of lye was exactly neutralized by 315 cubic centimetres of a normal solution of pure oxalic acid. Frequently in Naples and at many Italian hotels linen is bleached by immersion in a solution of lye that requires 500 cubic centimetres of a normal oxalic-acid solution to neutralize it. The destruction of bacilli is equally assured by six hours immersion in this liquid prepared for domestic use. Gerloczy, of Buda-Pesth, published a paper some years ago recommending lye as a microbe destroyer for fæcal matters; and recently Schimmelbusch and Behring have confirmed his results in experiments made with various micro-organisms.

To Purify Water.—For household use on a small scale water can be easily clarified and purified by placing a layer of clean cotton, two or three inches deep, at the bottom of a glass percolator, such as is used by druggists, and pouring the water to be filtered, to which solution of alum has been added, into the percolator, and allowing it to drip through into a clean vessel placed to receive it. The alum solution is conveniently made by dissolving half an ounce of alum in a quart of water, and of this solution a scant teaspoonful should be added to each gallon of water to be filtered. Alum is now used in a number of filtering and purifying systems, which of late years have been brought prominently before the public by their inventors or the companies controlling them.—*Tucker.*

Contagion Through Flies.—If, as it appears to have been proven by experiment, flies may be the means of disseminating anthrax, tuberculosis, and other infectious diseases, they should be objects of especial suspicion during an epidemic of cholera. They should be excluded from the house as far as possible, and all articles of food and drink should be protected by screens from contamination by them.—*New York Medical Record.*

Our Drinking Water.—Every individual who puts his digestive organs and general health in perfect condition by proper diet and early hours, and by drinking pure water, will find himself in the best possible shape to meet the cholera scourge if it comes. It is those who are in a poor physical state, and more especially those below par from poor digestion that may become the first victims. We are greatly dependent on our water supply for continued good health. The *Evening Sun* of November 7 states that there is filth in the Croton and that there has been no improvement in the condition of affairs in the watershed and that the measures taken so far by the authorities are ineffectual. Nitrates in the Croton may mean nothing serious, but it would be much more satisfactory if they were not present. If the Croton should become seriously affected, our only resource will be the drinking of natural table waters from the springs of non-malarious districts, such as the Highland, from the granite hills of Maine, whose analysis shows it to be an absolutely pure spring water.—*Doctor's Weekly.*

How to Drink Milk.—Some complain, says an exchange, that they cannot drink milk without being "distressed by it." The most common reason why milk is not well borne is due to the fact that people drink it too quickly. If a glass of it is swallowed hastily, it enters the stomach, and there forms in one solid, curdled mass, difficult of digestion. If, on the other hand, the same quantity is sipped, and three minutes at least are occupied in drinking it, then on reaching the stomach it is so divided that when coagulated, as it must be by the gastric juice, while digestion is going on, instead of being in one hard condensed mass upon the outside of which only the digestive fluids can act, it is more in the form of a sponge, and in and out of the entire bulk the gastric juice can play freely and perform its function.—*Medical Review.*

ADULTERATION.

ADULTERATION OF PEPPER.

For some reason or other, which is not very clear, pepper, for a considerable time past, has been selected as one of the chief articles for direct adulteration. The price is so low and the quantity used by any individual trader, and still more by any individual consumer, is so small that it is difficult to see what inducement there is for this practice. There can, at the same time, be no doubt of the prevalence and, indeed, of its increase. We do not speak of the inordinately large proportion of decorticated husks often mixed with black pepper, in order to lower its price, though that practice would require a great deal of defence. At the same time the addition of substances like ground rice to white pepper appears to be increasing, and is, of course, a distinct fraud upon the public. There is reason to believe also that some other substance is now being extensively added to white pepper in the process of grinding. What this substance is, we do not know, but it is suspected to consist of spent ginger—that is, of the refuse ginger left after the fermentation of ginger beer.

In addition to this, an entirely new practice has lately been developed, and that is, dyeing pepper yellow by the addition of turmeric, probably in the process of grinding. There is no doubt that a pretty yellow color is obtained by the addition, but the question remains why this tinge should be desired. The natural color of Penang, Singapore or Siam white peper is not yellow at all, but grayish. Nor is pepper served at table in a manner in which a bright color would be at all attractive to the consumer—that is, it is not seen in bulk at meals, as many alimentary substances are. Pepper is, of course, added to food mainly in the cooking, and if not, it is presented in a closed caster, and though this may be of glass, it does not allow minute shades of color to be seen. The circumstance which has led to the staining of pepper is the fact that particles decorticated here have a somewhat yellow tinge, which has become associated in the minds of the grocers with the best qualities prepared in recent years. No doubt, therefore, it has occurred to ingenious people that it would be advantageous to dye the common qualities of pepper of a similar, or even of a richer tint, and thus enable a higher price to be obtained for what is really an inferior article.

All these objectionable practices are, it need hardly be said, not carried out by the old established spice grinders of the country. Those who do enter into them are profuse in their guarantees of the purity of their wares, and, in most cases, they are careful not to offer their adulterated goods at a proportionate reduction in price. The grocers, therefore, are unaware of what they are buying, and are led to think that their purchases are really superior qualities. One test by which dyed pepper may be detected is to place a little in water, and to keep it for a few days, when it will be found that the water in which the dyed sample has been placed has become thick or turbid, and that it has a smell similar to that of drugs, such as rhubarb. This dyeing seems to us to be entirely purposeless, and it can readily be put a stop to if grocers will set their faces against any artificial addition of the sort, for which there is no justification.

It may be asked what the public analysts are doing while all these abuses are current. The reply in London at any rate, is that, so far as some of these adulterations are concerned, the vestries institute a great many prosecutions, with successful results, but that the cases are not thought worth reporting by the newspapers. We are told that in some districts there are very numerous convictions for the sale of pepper adulterated with ground rice, and that hardly any of them are reported. So far as the addition of some substance at present unknown, but believed to be spent ginger, to pepper, the analysts, no doubt, having had their attention drawn to it, will take steps to find out what is amiss. The dyeing of pepper by turmeric is a difficult question, so far as the law is concerned, because the Adulteration Act allows staining or dyeing, unless the substance added be injurious to health, or unless the admixture is sold to the prejudice of the purchaser. If pepper dyeing be legal, the trade must defend itself, unless it wishes to be deluged with canary-colored parcels. The degree of yellow is simply a question of the proportion of turmeric used, for an infinitesimal addition, from a quantitative point of view, will be sufficient to dye pepper in the most brilliant way. On the other hand, the added coloring matter soon fades, and if dyed pepper is kept in stock it soon resumes more nearly its proper tint, but with an unnatural complexion.—*Pennsylvania Grocer.*

GLUE NOT GELATINE.

A WARNING TO HOUSEWIVES.

Gelatine used as a food is practically a refined glue. According to the *Popular Science News*, common glue is prepared from the trimmings of hides and the refuse of slaughter houses and tanneries. The skins are cleaned and steeped in limewater, and afterward exposed to the air for some days. They are then boiled in water, and the resulting liquid run off and allowed to settle, after which it is allowed to cool and gelatinize in shallow boxes. The resulting cakes of soft glue are then dried on nets in large buildings, provided with movable blinds, so that the air can freely circulate through them in pleasant weather, while during storms the glue can be protected from the weather. This process of drying requires great care, as a rise in the temperature may cause the partially-dried glue to liquefy, making a "mess" which requires much labor to clear up, to say nothing of the loss or damage to the stock. It was formerly supposed that glue could only be dried at temperatures above the freezing point, but it was accidentally discovered in this country that frozen glue was of equally good quality, and the manufacture is now carried on all the year round. Cooking-gelatine is practically made by the same process, but much greater care is taken in selecting the stock, and the utmost cleanliness is necessary in all the processes. It forms a healthful and attractive article of diet, but its nutritive value is not very great.

Physicians often recommend the use of gelatine in fevers, and in affections demanding bland, unstimulating, and easily digestible food. It is also extensively used in making jellies, charlotte russe, blanc mange, etc. That it is often an ingredient of ice cream is a well-known fact. As a natural consequence of the rapidly growing demand for gelatine, there is now on the market much that is not only cheap, but is highly dangerous to use as food. Not a few manufacturers, it is said, finding the profits on pure gelatine too small, buy the cheap raw material, which has nearly reached, or has passed, the line of decomposition. They use various means to cover up the putridity, relying especially upon acids. If the materials from which gelatine is made are putrescent, it certainly cannot be a wholesome food. And it is reasonable to suppose that when it is used with milk, it is capable of doing its greatest harm. Milk, of all foods, is one which is most susceptible to the action of impurities, and the most easily rendered poisonous by them. If exposed even to the bad air arising from decomposing substances there is very liable to be developed that virulent poison known as tyrotoxicon.

Gelatine made from materials which have decomposed must necessarily be itself a menace, and when used with milk, favor those changes which are essential to the development of this deadly poison. It is theorized that many of the cases of ice-cream poisoning have been due directly to impure gelatine used in its manufacture, the same hastening the decomposition of the ice cream and causing the production of tyrotoxicon.

As has recently been said, it is simply appalling to think of the danger to health in using gelatine as a food, unless it is absolutely pure. There are many varieties of gelatine that look handsome, but are death-dealing agents, and some kinds are so thoroughly pregnated with acid that they have curdled milk when amalgamated. As it would be tedious and difficult for users of gelatine to determine the pure from the impure article, it is advisable, if they appreciate health, to use no gelatine but that which is branded by reputable manufacturers. A wise and safe method when using gelatine in combination with milk, especially in making ice cream—for therein lies the greatest danger—is to make it themselves. Buy nothing but the best gelatine and other ingredients, which cost but a trifle more than that which is dangerous, thereby compelling, to some extent, unscrupulous parties to keep and sell nothing but pure, reliable goods, which are indispensable to those who value their health.

MISCELLANEOUS.

PETROLEUM.

BY A. AUCHIE CUNNINGHAM, F. C. S.

Petroleum belongs to the hydrocarbons of the series known as paraffins, having the general formula $C_n H_{2n+2}$; about which little was known before 1848, except the methane or marsh gas group, which for many years has been familiar to the inhabitants of the rural districts of various countries, being called in some parts "holy fire," in others, as in Scotland and England "will o' the wisp," while in Ireland it went under the name of "banchee"; and many are the weird tales to be told while sitting at the fireside of the country folk regarding this mysterious light.

The paraffin series of hydrocarbons has many members, several of which are mixed to form the various petroleums found in different parts of the globe, with much variation in properties.

Paraffins may be prepared in many ways, which accounts for the numerous theories regarding the origin of the natural paraffins, as petroleum, ozokerite, etc. For instance they may be formed by bringing together two alcohol radicals, or by liberating the alcohol radical from a compound and bring it into contact with hydrogen, or by heating a fatty acid, or an acid of the series $C_n H_{2n-2} O_4$ with an alkali; when cast-iron is dissolved in acids the hydrocarbons obtained contain paraffins; when wood, coal, bituminous shale, fatty oils, resins, animal matter and other organic substances are distilled, paraffins are formed. All these reactions are complicated, as many compounds are formed termed bi-products, at the same time.

In nature we meet paraffins in three conditions; first, marsh gas, which represents the gaseous condition; second, petroleum, which is a mixture of various liquid hydrocarbons; and third, ozokerite, which is made up of many solid paraffins and isomerids. It is also met in the resin of the pinus sabiniana of California.

The peculiarities of this branch of hydrocarbons is, they are not attacked by sulphuric or nitric acids or alkalies, and it was from this fact that the name originated.

It is needless to state more regarding the gaseous state of paraffins, than in many respects they may be compared to coal gas, being combustibles but not explosives, but when mixed with air in various proportions and lighted, a mixture is ignited which takes fire with explosive violence, as in the many fire damp explosions in coal mines.

The properties of the liquid paraffins vary with the district where found, as for example at Milan it is sherry colored, while in Russia and the United States of America it is generally brown by transmitted light and dark green by reflected light, whereas in India it is nearly black in color.

Some samples give off vapors at ordinary temperatures which are inflammable, others will even extinguish a lighted taper when plunged into it.

Some petroleums are valuable for the large percentage of burning-oils which may be extracted, others for the fine lubricating oils that may be made from them; many contain solid paraffins which are extracted and molded into candles or the softer kinds made into vaseline, while some with a melting point of about 100 deg. F. are used in hospitals to a large extent in place of plaster of paris Some petroleums contain much of what is commonly called asphaltum, which takes away from the value of the products. This is the chief fault to be found with the petroleums of California and require us to bring much oil from the East. Of all the theories regarding the origin of petroleum only two are thus of any great importance.

The first states that by the action of steam on compounds of carbon and iron, or other metal, in the following manner; At the time when, as we are told, the earth was "waste and void," and "darkness was upon the face of the deep" the cooling of the globe had so far progressed that water had condensed upon the solidified envelope or crust of the still fluid mass, and formed a continuous layer or sheet. Much water, however, still suspended in the air forming impenetrable clouds of vapor through which light could not pass. As the temperature of the earth further declined, the interior portion or core contracted, and this was naturally followed by a crumbling of the crust, whereby the "dry land" was caused to appear, and the "waters were gathered together in one place" forming the seas. At the same time fissures were produced, the crumbling being attended with a certain amount of cracking of the envelope, and through these water found its way into the interior of the mass. Here the waters became vaporized, and the steam super-heated, and under immense pressure, came into contact with the compound of iron and carbon, which were still at a very high temperature. Under these circumstances the aqueous vapor, consisting of hydrogen and oxygen, became decomposed, the hydrogen forming with the carbon the hydrocarbons known as petroleum, while oxygen entered into combination with the iron.

The other theory which receives the greater measure of support, ascribes the production of petroleum to the slow decomposition of vegetable and animal matter. In the precarboniferous era, the earth was covered with a rank and marshy growth of moisture-loving plants, and the air was charged with aqueous vapor and carbonic acid, while the seas teemed with the lower forms of animal life. By the convulsions to which the earth was, at this stage of its existence, peculiarly subject, alternate submergence and elevation of the surface occurred, both animal and vegetable forms being covered with sands of the ocean. The successive processes resulted in the formation of beds of animal and vegetable matter by the slow decomposition of which the petroleum now stored in the earth for the use of mankind was produced.

In the case of petroleum, as that of coal, we may consider that in the combustion of the material we have a reproduction of the sunlight which fostered the growth of the lower animals existing prior to the creation of man.

The great paraffin industry of Scotland shows how this petroleum may be successfully made from bituminous shales of certain qualities, and when refined, the products are the same as those obtained from the oil wells of Batuum and Pennsylvania, and in every way superior to the products at present obtained from the petroleum of California.—*Cala Homeopath.*

THE HYDROMETER.

The specific gravities of all liquids are referred to distilled water as a standard, the unit of comparison being 1,000 grains of distilled water at a temperature of 60 deg. Fahrenheit. For example, an equal bulk of oil of vitrol (C. P.) at the same temperature will be found to weigh 1,845 grains, the specific gravity of oil of vitriol being expressed by the figures 1,845. The inconvenience of measuring and weighing like bulks of liquids led to the construction of the hydrometer, its principle of operation being that of the law of floating bodies, i. e., that when a body floats the weight of the bulk of liquid displaced is equal to the weight of the body floated.

The confusion caused by the use of four figures in denoting specific gravities has led to the substitution of various arbitrary scales in the making of hydrometers, thereby greatly simplifying it as an instrument for practical use; many of these scales have been devised for a specific use, as Tralle's, Cartler's, Syke's and Gay Lussac's for spirits, Kaiser's, Long's, Balling's and Southworth's for beer.

Of the scales for general use, Twaddle's and Baume's are the most conspicuous; of the latter there are two kinds, one graduated from 0 to 70 deg. for liquids heavier than water, and the other from 10 to 100 deg. for liquids lighter than water. These scales, now more generally in use among manufacturers than any other, were first published by Antoine Baume, a French chemist, in 1768. He constructed his dydrometer for liquids heavier than water by preparing a solution of salt containing 15 parts of salt by weight and 85 parts of water by weight, making the scale at the point to which it sank in pure water 0, and in the 15 deg. salt solution 15, dividing the space between 0 and 15 into equal parts and continuing the scale above 15 in the same manner. For his hydrometer for liquids lighter than water he used a 10 per cent solution of salt prepared in the same way, fixing 0 as the point to which his hydrometer sank and making distilled water the 10 point, and obtained a scale as in the other instrument, but running in the opposite direction.

Twaddle's scale is converted to specific gravity by multiplying its degrees by 5 and adding 1000 (water) e. g. 24 deg. Twaddle's=1120 S. G.

The salinometer, for determining the density of water in marine boilers, has for its 0, the point to which the instrument will sink in distilled water at 200 deg. Fahrenheit. The division of the scale is based on 32 parts of water containing 4 parts of saline matter, and is marked ${\frac{1}{32}}^{d}$, ${\frac{3}{32}}^{ds}$, ${\frac{3}{32}}^{ds}$, ${\frac{4}{32}}$,^{ds}. The word "Blow" is marked midway between ${\frac{2}{32}}^{ds}$ and ${\frac{3}{32}}^{ds}$, indicating that at that density the water should be withdrawn from the boiler and replaced by fresh water to prevent incrustation.

PROOF SCALE SPIRIT HYDROMETERS.

These hydrometers are usually graduated to show true readings at a temperature of 60 deg. Fahrenheit, but as liquids expand in volume by an increase of temperature, and contract if the temperature be lowered, it follows that if the spirit to be tested be warmer than 60 deg. the dydrometer will indicate a greater strength than actually exists, or if the spirit be below 60 deg. the hydrometer will not indicate its full strength, hence the necessity of knowing what corrections to apply to the hydrometer readings when the temperature of the spirit be above or below the temperature at which the hydrometer is graduated. The latest improved hydrometers have a thermometer which is graduated in conformity with the proof scale spirit hydrometer; and is divided into three columns representing the three different ranges of liquors. The column on the left is for use with liquors ranging from 25 above proof to alcohol. The middle column is for liquors ranging from 10 below proof to 25 above proof, and the right hand column for liquors ranging from 50 below to 10 below proof, each division on the thermometer representing one degree of the hydrometer.

To Apply the Corrections for Temperature: Note the reading above or below proof (marked P on the hydrometer) at which the spirit under trial cuts the stem of the hydrometer, then from this reading subtract as many degrees as the mercury in the thermometer tube stands above 60 deg., being careful to use the proper column according to the range of the liquor as indicated by the hydrometer reading. Should the thermometer show a lower temperature than 60 deg, then add as many degrees to the reading of the hydrometer as the mercury stands below 60 deg.

For Example: Should the hydrometer sink to 40 above proof and the thermometer by the scale in the left hand column show 4 above 60 deg., the strength of the liquor would be 36, but should the thermometer stand 4 below 60 deg., then the strength of liquor would be 44. Again, should the hydrometer indicate 30 above proof and the mercury in the left hand column stand at 12, it would show that the strength of the liquor was less than 25 above proof, and the middle column must be referred to for correction, which gives 14, making the strength 16.

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SHAMPOO.—A very good shampoo is made of salts of tartar, white castile soap, bay rum and lukewarm water. The salts will remove the dandruff, the soap will soften and clean the hair thoroughly, while the bay rum will prevent taking cold.

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A SEMI-CENTENNIAL.

[Republished by request.]

It is at least fair to presume that a manufacturing business, based upon a special invention, which has flourished and grown constantly greater during a period of fifty years, must have a solid foundation in supplying something the world wants and in doing so with a product of exceptional merit. "Circus advertising" may "boom" into brief prosperity almost anything, particularly in this country, where people have, very generally, a well-defined mania for the trying of anything and everything that is new, even if novelty be its only claim to favor. In one respect at least, Americans obey a scriptural injunction, in that they "prove all things and hold fast to that which is good." Hence a thing which has made and maintained a hold upon popular appreciation throughout so long a time, must have successfully borne the test of practical experience, constantly applied, in competition with a succession of would-be rivals.

That reflection was suggested by noting newspaper mention of the fact that this is the semi-centennial year of the great starch manufacturing business carried on by T. Kingsford & Son, at Oswego, New York. It was in 1842 that Mr. Thomas Kingsford invented and perfected a process for extracting, in a state of absolute purity, the amylaceous cells (starch), from Indian corn. The product thus obtained being absolutely free from the oily, gummy and nitrogenous elements of the grain, was manifestly infinitely superior to anything of its kind previously known and, as such, certain to command the favor of the public by deserving it. With that assurance Mr. Kingsford went into the manufacture of starch, in a small way, comparatively, at first. The results more than justified his expectation and to keep pace with the ever increasing popular demand, his factory has been enlarged until it now turns out no less than thirty-five tons per diem of the justly celebrated "Kingsford's Pure and Silver Gloss Starch." To give some idea of the magnitude of the work required to turn out such a quantity of material a few facts and figures will be effective. No less than seventeen and a quarter acres of ground are occupied for factory purposes and of these five acres are covered by buildings of stone, brick and iron, in great part seven stories high, affording twelve acres of floor space. The forces of six hundred employes and 2,065 horse-power derived from turbine wheels and steam engines are utilized in making the 21,500,000 lbs. of starch which is the factory's annual capacity, and in preparing for the market the 72,000 handsome packages which constitute each working-day's product. The annual consumption of lumber in boxes amounts to five millions feet, and of packing paper three hundred and fifty tons. Descending to the details of machinery requisite for the processes of this stupendous manufacture, we learn that there are, for grinding the corn from which the starch is made, six pairs of heavy iron rollers and twenty-four pairs of burr-stones; to supply water for extracting the starch there are four miles of water-pipes, varying in size from two to twenty-four inches in diameter and the starch and water mixture in process of separation is distributed in six and a quarter miles of troughs, then strained through six hundred and ninety big sieves, and dried by the heat from thirty-three and a quarter miles of steam-pipes.

An effect without an adequate cause being something quite unthinkable, there must be some sufficient reason for the enormous popular demand compelling such stupendous provision for supplying, and in this case the reason is easy to find in a consensus of the judgment of consumers, all over the world, that Kingsford's starch is purer and better than any other. This credit is accorded it both as a result of its practical employment in the diverse ways it serves popular wants and from the thorough and elaborate chemical tests to which it has been put by scientists. Dr. Hassall, the eminent author of various standard works on dietetics, attests—under the seal of the London Analytical Sanitary Institution—that he has by microscopical examination and chemical analysis demonstrated Kingsford's starch worthy "to be regarded both chemically and dietetically as an arrow-root," and that from an acquaintance with it of many years he pronounces it "very pure" and "a valuable article of diet." Prof. E. Landrin, director of the laboratory of the "Union Nationale" and professor of chemistry at the Chaptal College, Paris, certifies as the result of a like double analysis that he finds Kingsford's starch "a product of an extraordinary beauty and perfect whiteness" and that it "is composed of amylaceous matter, perfectly pure and obtained without any chemical preparation."

Too much importance cannot be attached to that certification of the absence of chemical preparation of this starch particularly by those who employ starch for dietetic purposes, since this constitutes the inherent superiority of Kingsford's starch above such as is manufactured by other processes much in vogue for the economical making of inferior starches unfit for human food.

Similar endorsements by the leading chemists and microscopists of Europe and America might be multiplied indefinitely were there any object in doing so, but it seems unnecessary, in view of the popular acceptance of the fact unanimously proclaimed for fifty years and formally expressed by the awards of highest premiums whenever placed by them at World's Fairs and minor expositions, thus showing that Kingsford's starch is incomparably superior to all others.

For laundry uses, the sizing of fabrics and the making of a fine grade of adhesives, Messrs. Kingsford & Son manufacture brands known as "Pure and Silver Gloss Starch," which by reason of their purity are much stronger and consequently more economical for the consumer than any other and at the same time productive of such perfection of whiteness and finish as is unattainable without them.

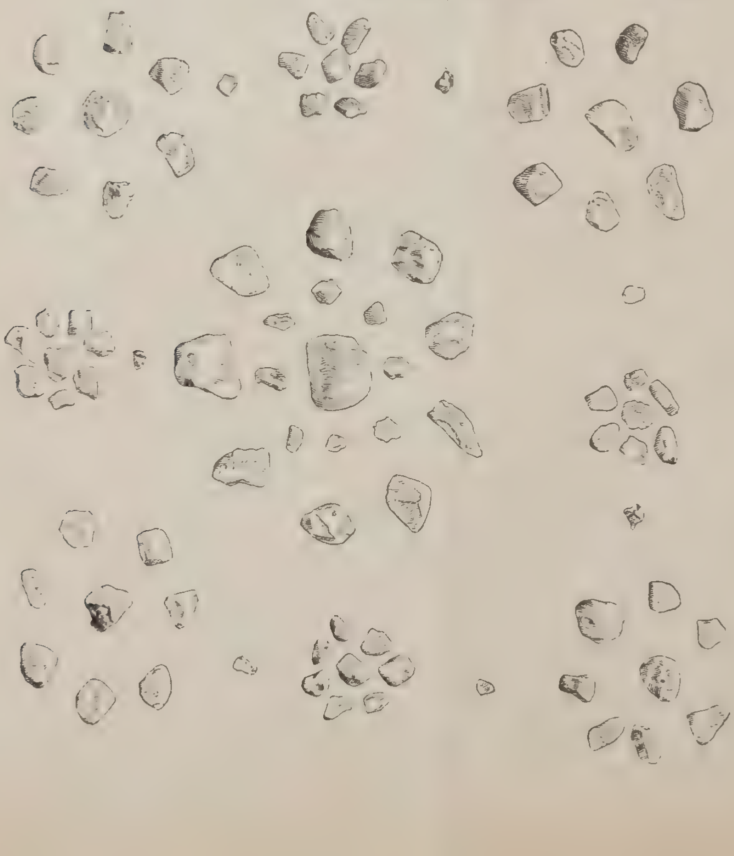
For food purposes, the firm make "corn starch" or "prepared corn," which is identically the same material as the highest grade of "arrow-root" made from the root of the *Maranta* and *Curcuma* plants, both products being simply amylaceous matter, with the balance of probability of purity very largely in favor of the corn resultant. There is absolutely no difference between them in point of flavor and desirability for epicurean employment, while for invalids' food the corn preparation is unquestionably the best. Although it has been but a few years since corn starch was much thought of as an article of food, so highly has its excellence been appreciated that it is now recognized not only by the average millions who simply know what is good and like to eat it, but by the masters of gastronomic art as a worthy material for the employment of the most cultivated taste and expert skill for its preparation in an infinity of ways.

And corn starch has been found just the most desirable of things in the estimation of many ladies, as a toilette powder. In Venezuela, where a lady of fashion hardly esteems herself in fit condition to receive company or take a promenade until she has whitened her face almost like the clown in a pantomime, el almidon de Kingsford is an essential of the toilette and is esteemed extremely beneficial to the skin.

BUFFALO LITHIA WATER

A POWERFUL SOLVENT OF STONE IN THE BLADDER.

The following plate is from a photograph and represents the exact size and shape of Calculi passed by the Hon. T. J. Jarrett, ex-Mayor of Petersburg, Va., under the action of Buffalo Lithia Water.



The original stone shown in the cut together with one from a similar case, will be on exhibition at Ditman's Pharmacy, Astor House, Corner Broadway and Barclay Street, New York, from where water may be obtained.

Statement of Dr. John Herbert Claiborne, M. A., M. D., of Petersburg, Va., ex-President and Honorary Fellow Medical Society of Virginia.

PETERSBURG, VA., Sept. 5, 1892.

E. C. LAIRD, Buffalo Lithia Sprnigs, Va.

My Dear Doctor:—I send by this mail a box of CALCULI, passed at various times within the last year by Hon. T. J. Jarrett, our former mayor, whilst drinking the BUFFALO LITHIA WATER. They give him but lttle pain now when passing. I have never critically examined the broken CALCULI, passed in such quantities from Mr. Jarrett's bladder, but am under the impression that the most of them were MANESIAN PHOSPHATES. There were specimens, however, which presented the appearance of OXYLATES, and, I remember, impressed me specially as being URIC ACID. I do not pretend to account for the mode of their solution by the Buffalo Lithia Water. There is nothing in its analysis which would warrant such results, but THE RESULTS ARE THERE, and seeing is believing. I can only suppose that in Nature's alembic there has been some subtle solvent evolved, too subtle to be caught by our coarse agents, which makes this wonderful disintegration. "There are many things in heaven and earth not dreamt of in our philosophy," and his is a short creed who believes only what he can prove or explain. Faithfully yours, JOHN HERBERT CLAIBORNE.

It is well known that stone in the bladder, for the most part Gout, Rheumatic Gout, Rheumatism, and also various forms of Dyspepsia and Nervous prostration have a common origin, viz.: excess of uric acid in the blood. It is evident, then, from the foregoing statement, that this water must possess extraordinary potency alike in all of these maladies. In Bright's Disease of the kidneys it is well-nigh specific.

Water in cases of one dozen half-gallon bottles, $5.00, f. o. b. here, and for sale by all first-class druggists.

Illustrated 32-page pamphlet, giving further information, sent prepaid on application to

THOMAS F. GOODE, Proprietor,

BUFFALO LITHIA SPRINGS, VA.

A LARGE GARDEN.—There is an immense garden in China that embraces an area of 50,000 square miles. It is all meadow land, and is filled with lakes, ponds and canals. Altogether it is as large as the States of New York and Pennsylvania combined.

◆

MIKE ROBE.—"Be me sowl," exclaimed Mrs. Finnegan, "Iverything is blamed on the poor Oirish nowadays. Wud yez belave it, Pat? They do be sayin' that an Oirishman gave the people in the Sout' the yaller faver—a felly be the name of Mike Robe."—*America.*

◆

DO YOU CARRY A POTATO, OR A "BUCKEYE?"

This is the season in which the old ever unsettled question breaks forth afresh and claims its meed of annual attention—"Which is the best pocket charm against rheumatism, a horse chestnut or a potato?" Each has its enthusiastic advocates and it would be folly to deny that earnest faith in either has, in many cases, been an effective palliative of pain, perhaps even exercised a remedial influence of considerable permanence Possibly, if faith had been equally strong as to the curative efficiency of a cocoanut or a carrot, the results would have been as satisfactory. The powerful influence of mental action in affecting physical conditions is only beginning to be justly appreciated by men of science, but that it is a potent factor in the restoration of health certainly cannot be denied, so long as men continue to aver their cure of rheumatism by means of vegetables in their pockets. It is to be feared, however, that the percentage of humanity capable of such robust faith, in this era of doubt and question, is rather small and the majority of rheumatic sufferers will have to find relief in medicines capable of dealing with the malady on a purely physical basis. But what medicines are worthy of such regard? It is hardly too much to say all and none, if the symptomatic system of treatment is followed. There are almost as many varieties of rheumatism as there are cases, or so at least it seems to a layman in the light of his own experience and observation. That which relieves the agonizing pain of one man may be—in fact is very likely to be—wholly ineffective for another, and may even upon the recurrence of the complaint utterly fail of helping the person before benefited by it. Hence, in all use of specific remedies for the rheumatism, treating it as a disease in itself and not simply as a symptom of a diseased condition, the rule of the Missouri river pilots appears to be about as good as any—"never try to make the same channel twice." The only uniformly successful cure for rheumatism is through attacking its cause. One says "it is caused by the inflammation of the periosteum," another that "it results from acid in the blood," and there are many more ways of accounting for it, none of which go to the bottom of the difficulty although the second quoted is most nearly right. The truth of the matter is that rheumatism is one of Nature's ways of calling attention to the fact that the blood is impure, loaded with effete matter which vitiates the action of all the vital organs and threatens death if its unnatural condition is not radically modified. It is a sympton, just as dropsy is—and that, too, used to be treated as a disease, without reference to its cause. This being understood, it must be evident to every intelligent mind that the medicine which expels those impurities from the blood, and so removes the cause of the distressing symptom, is the one to which the afflicted should look for relief, to the exclusion of all others however alluring their promise as "specifics."

It may take longer to so purify the blood that a rheumatism shall be radically cured and even rendered impossible in the future, than it would to obtain temporary relief through the use of drugs which merely deaden the sense of pain, but there can be no question which of the two is best. Happily such a potent medicine for purifying the blood exists in Ayer's Compound Extract of Sarsaparilla; which combines, in the most effective proportions, the best alteratives known to modern medical science. An inexpensive course of this preparation will not only cleanse the blood but stimulate and strengthen the blood-making organs and through them the whole vital economy to such an extent as will not only enable the system to expel disease but render it impervious to future attacks.

◆

Ripans Tabules: for liver troubles.

This is (a) House Cleaning Time

—and it's a time of trouble and much work for *unbelieving* women. Because their grandmothers worked hard then and made things uncomfortable, they can't believe that there's any better way.

Other women can—millions of them. They use *Pearline*, and "take it easy." They're spared the hard work, get through in half the time, and save the wear and tear that's made by useless scouring and scrubbing. Paint, glass, marble, woodwork, carpets, hangings, everything that will "wash" at all, is cleaned or washed easily and safely *with Pearline.*

Use *Pearline*, and you won't mind the trials of house-cleaning. You can laugh at them. But if you *don't* use *Pearline, wiser women will laugh at you.*

Send it Back Peddlers and some unscrupulous grocers will tell you "this is as good as" or "the same as Pearline." IT'S FALSE—Pearline is never peddled, and if your grocer sends you something in place of Pearline, do the honest thing *send it back.* 306 JAMES PYLE, New York.

Dyspepsia

Dr. T. H. Andrews, Jefferson Medical College, Philadelphia, says of

Horsford's Acid Phosphate.

"A wonderful remedy which gave me most gratifying results in the worst forms of dyspepsia."

It reaches various forms of Dyspepsia that no other medicine seems to touch, assisting the weakened stomach, and making the process of digestion natural and easy.

Descriptive pamphlet free on application to
Rumford Chemical Works, Providence, R. I.

Beware of Substitutes and Imitations.

For sale by all Druggists.

DYSPEPSIA FLOUR.
Also Special Diabetic Food and Barley Crystals.
UNRIVALED IN AMERICA OR EUROPE.
Circulars and Baking samples Free.
Write Farwell & Rhines, Watertown, N.Y., U. S. A.

Fine Table Wines
From our Celebrated Orleans Vineyard.

Arpad Haraszthy & Co.

Producers of the
ECLIPSE
CHAMPAGNE,
530 Washington St.
SAN FRANCISCO.

GROWERS OF

Chateau d'Orleans, the highest grade Claret made in America.

Cabernet Blend, the richest and finest of Table Clarets.

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O V Sauterne, with the exact character and *Seve* of imported Sauternes.

The **Chateau d'Orleans** and **O V Chablis** are sold in glass only.

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"THE HYGEIA,"
A SANITARIUM
AT CHATHAM, COLUMBIA CO., N. Y.
OWNED AND MANAGED BY
DRS. A. M. & C. H. MASON.

Newly erected and furnished in the latest and most approved style, for the special treatment of Cancer and Tumors.

TERMS MODERATE. *SEND FOR CIRCULAR*

Danger of Railroad Traveling.—Occupations requiring one to be more or less constantly on the railroad are extra hazardous, not so much because of the accidents to which one is exposed, as because of the continued jarring, the superheated and foul air in the car and severe drafts every time a door or window is opened, and the fine dust which settles not only in the air passages, but almost completely clogs up the pores of the skin, throwing extra work on the kidneys and giving rise to the so-called "railroad kidney." For this reason as well as for the broken sleep and irregular meals, commercial travelers are undesirable life-insurance risks.

◆

Home Life of Dickens.—The series of reminiscent articles of "My Father as I Recall Him," by Mamie Dickens, the oldest and favorite daughter of Charles Dickens, will begin in the next issue of the *Ladies' Home Journal* by an entertaining narration of Dickens' personal habits, and an inner glimpse of his home life.

Rheumatism.—The following prescription is a good combination in rheumatism. I have tested it personally, and know whereof I speak, says Dr. Conger, in *N. E. Med. Monthly*: Take of iodide of potash, 2½ drams; tincture of cimicifuga 1½ ounce; vin, colch. sem., 1 ounce; fl. ext. henbane, ½ ounce; simple syrup, 5 ounces. Mix. One teaspoonful well diluted with water every four hours.

◆

Double Education.—A young doctor, wishing to make a good impression upon a German farmer, mentioned the fact that he had received a double education, as it were. He had studied homeopathy, and was also a graduate of a "regular" medical school. "Oh, dot vas noding" said the farmer, "I had vonce a calf vot sucked two cows, and he made noding but a common schteer after all."

◆

There are in America 119,000,000 of the big old copper pennies lying unused somewhere. Few pennies get back to the mint.

BUSINESS NOTES.

DEAFNESS CANNOT BE CURED

By local applications, as they cannot reach the diseased portion of the ear. There is only one way to cure deafness and that is by constitutional remedies. Deafness is caused by an inflamed condition of the mucous lining of the Eustachian tube. When this tube is inflamed you have rumbling sound or imperfect hearing, and when it is entirely closed, deafness is the result, and unless the inflammation can be taken out and this tube restored to its normal condition, hearing will be destroyed forever; nine cases out of ten are caused by catarrh, which is nothing but an inflamed condition of the mucous surfaces.

We will give One Hundred Dollars for any case of deafness (caused by catarrh) that cannot be cured by Hall's Catarrh Cure. Send for circulars; free.

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HORSFORD'S ACID PHOSPHATE

Relieves mental and physical exhaustion. Dr. W. C. Hanscome, Minneapolis, Minn., says: "I used it in a case of acute rheumatism, during convalescence; the particular symptoms I wished to relieve were sleeplessness and nervousness, and the results were all I desired."

◆

CANCER OR ?

Undoubtedly many cases have been diagnosed as cancer which are not cancer and yet they have been cured. It is hardly fair to say, when such cases have been cured, that they were not cancer. In either case such cases as physicians have pronounced cancer and declared their inability to do anything for except to allay pain certainly ought to be helped if help is possible. From personal observation we know that many such cases have been sucessfully treated at the sanitarium in Chatham, Columbia county, N. Y., and we advise all those who believe themselves to be sufferers from cancer to address the Hygeia, or Dr. Mason the proprietor, for further information before giving up.

SCOTT'S EMULSION
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HYPOPHOSPHITES OF LIME AND SODA.

THE STANDARD EMULSION OF COD LIVER OIL THROUGHOUT THE WORLD.

A BEAUTIFUL CREAMY MIXTURE—ALMOST AS PALATABLE AS MILK.

Having much greater remedial power than the crude Cod Liver Oil, without any of its nauseating effects. Its PALATABLENESS, EASE OF DIGESTION, and long tolerance by most sensitive stomachs as well as its reliable therapeutic effect, has given it special favor with the medical Profession, and receives their unqualified endorsement and support.

Possessing as it does the tonic and stimulating properties of the Hypophosphites in combination with the strengthening and fattening qualities of the Cod Liver Oil—gives it a remedial value in WASTING DISEASES, ANÆMIA or IMPOVERISHED BLOOD, EMACIATION and CONSUMPTION—unequalled by any single or combined remedy in existence. The rapidity with which delicate children fatten and grow strong on this palatable Emulsion, is very remarkable.

Samples will be sent free except express charges to any wishing to try this preparation. For sale by all druggists.

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OSWEGO STARCH

The Standard of Excellence.

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OR LIQUID PEPPER.

IS SIMPLY THE PULP OF THE RIPE PEPPER EXTRACTED BY PRESSURE.

The seed of this Pepper was obtained from Central America, and by careful cultivation in Louisiana for many years has been so improved in strength, flavor and aroma as to have become a new variety of Red Pepper, superior to all others. The pulp is so handled as to retain all the flavor, strength, aroma and color of the ripe fruit, and to keep unimpaired in any climate. It excites the appetite, promotes digestion, and is pronounced by connoisseurs to be the finest condiment in the world. For medicinal purposes it recommends itself by its purity, strength and diffusible form.

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RHEUMATISM AND NEURALGIA are being constantly cured by Robinson's "Sura Cura," a positive antidote for all impure states of the blood. Price $1, sent by mail. Send for circular.

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"A man works from Sun to Sun,
But a woman's work Was never done"
Until Gold Dust came to her ken, And now She's through before the men.

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Agents Wanted. Address **DR. JUDD, Detroit, Mich.**

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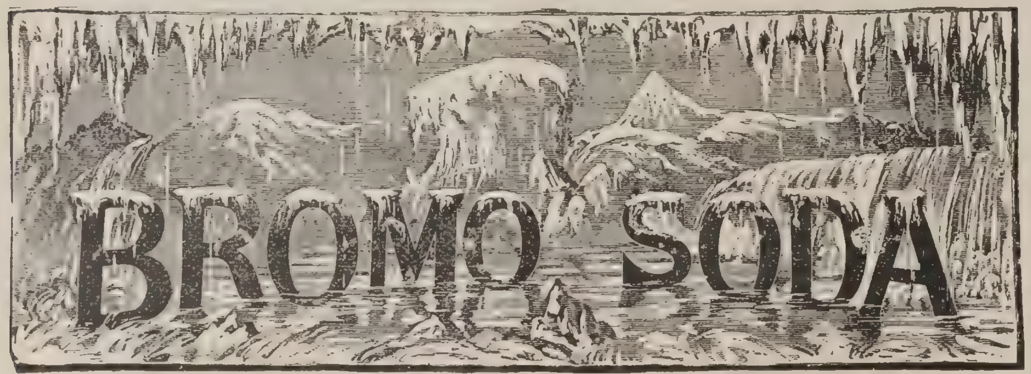
WARNER & CO.'S EFFERVESCING



Useful in Nervous Headache, Sleeplessness, Excessive Study, Over Brainwork, Nervous Debility, Mania, etc.

DOSE.—A heaping teaspoonful in half a glass of water, to be repeated once after an interval of thirty minutes, if necessary. Each teaspoonful contains 30 grs. Bromide Sodium and 1 gr. Caffein.

It is claimed by some prominent specialists in nervous diseases that the Sodium Salt is more acceptable to the stomach than the Bromide Potassium. An almost certain relief is given by the administration of this Effervescing Salt. It is also used with advantage in INDIGESTION, DEPRESSION following alcoholic and other excesses, as well as NERVOUS HEADACHE. It affords speedy relief for MENTAL and PHYSICAL EXHAUSTION.

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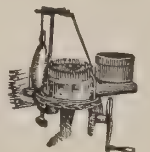

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BUT BUY A
Bickford Family Knitter,
and knit everything needed in your family, and if necessary knit for others and make money.
Sold on installments.
A. M. LAWSON, 783 BROADWAY, NEW YORK.

BLAIR'S PILLS.

Great English Remedy for GOUT, RHEUMATISM and KIDNEY COMPLAINTS.
Sure, Prompt and Effective
Large Box, 34; Small, 14 Pills.
At all Druggists, and
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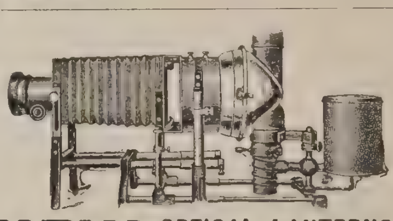

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NOVEMBER 15, 1892.

CONTENTS.

Page
Adulteration 337
Dangers of Malt Liquors to Nursing Women 336
Discovery of America 339
Editorial 333
The True Lesson to be Taught—Cholera as a Manifestation of Divine Displeasure.
Face Wrinkles 337
Food for Coffee Drinkers 337
Gilt-Edge Butter Compound 337
Home of the Hores 339
Household 337
How to Care for Shoes 338
Hygienic 336
Medical 334
Medicine in Fiction 334
Miscellaneous 339
Mulligatawny 338
Rice and Its Preparations 337
Treatment of Sea Sickness 335
Use More Soap 336
Water-Brash From Oatmeal 335

THE TRUE LESSON TO BE TAUGHT.

Instead of attempting to teach that Columbus was the great discoverer to whom Americans owe everything, the rising generation and for that matter every American, should be instructed in truthful history. We cannot do better than to quote the following extracts from a lecture as they convey our ideas best.

Rev. A. D. Mayo, of Boston, the well-known Unitarian educator and preacher, lectured before the Young Men's Christian Union on Sept. 11 and uttered some wholesome truths about the glorification of Columbus and his times, as follows:—

Just now, before the electric light is let on which will envelop the nation in a rainbow of universal glorification of everybody and all things connected with the American name, it may do no harm if, in this quiet hour, we try to find out just what it all means to us as a people; especially what we are to tell the fifteen million school children, who will have the best time out of it, what it means to them and to the country that God has given for their glorious heritage. Let us try to find out on what ground we are called to do honor to Christopher Columbus, to the sovereigns and the nation under whose patronage he sailed, and to the order of human affairs he set up in this new world. What this and all that came after it, the original settlement of the western continent by the Latin nations, the Spanish, French and Portuguese, and its occupation by them practically for two centuries, had to do with the making of this and the other American republics of to day; in what respect we can speak of Columbus and his associates as the makers of American life. How shall we best use this memorial year to present to the world our own nationality as an object lesson for all peoples, especially for the advancement of a genuine constitutional republican civilization on the western continent? It is already evident that the occasion is to be "improved" to the uttermost to magnify the characters and glorify the style of human affairs that prevailed in the Latin nations of Europe four centuries ago.

While the canonization of Columbus into St. Christopher, long advocated by an influential body of ecclesiastics, has been wisely avoided, yet his indorsement as a Christian of an almost ideal stamp has already gone forth. But it will do nobody good, and a great many American children and youth harm, if the old historical glamor of the past four centuries is still permitted to befog the real facts of the discovery, conquest and occupation of this western continent by this group of nations. All history, like "all Scripture," finally, "is written by the inspiration of God." So let us set up over the portals of the great avenue of our world's exposition the statue of impartial history, and go into this year of jubilee with a full understanding of what we are about. Then shall we know why we dedicate the statues of Columbus and Queen Isabella, and just what lessons we propose to teach our children and youth from these beginnings of American life.

Let it then be fully understood that the joint government of Castile and Aragon, presided over by Ferdinand and Isabella, represent in the history of Spain the beginning of that era of civil and religious despotism, and the suicidal industrial policy which, in four centuries, has brought the proudest nation in Europe to the condition of a second rate power, dependent on the expectations inspired by a growing liberal class for the salvation of the nation itself. Our good ladies who, just now, are "booming" Queen Isabella, seem to have forgotten that she was the mother of the Spanish Inquisition and that ten thousand of her own subjects were burned at the stake for heresy. This joint government of their "Catholic majesties," inaugurated a policy that desolated central Europe with a long generation of bloody war. Neither did Queen Isabella "pawn her jewels" for Columbus. His first voyage was paid for in part out of the public treasury, partly from private funds. Two of the vessels were extorted from Palos as a penalty for some municipal shortcomings. The crews were gathered by a proclamation of pardon for all criminals who would enlist, and, but for the timely intercession of personal friends, Columbus would have gone to sea with a crew of "jail birds." The most notable events of these years were the banishment of the Jews and the Moors from the kingdom, putting out the light of knowledge and skilled industry, and the inauguration of the gigantic scheme of keeping the finances of a European kingdom afloat by the plunder of a new continent. This is not the old romance we used to read, but the bald facts of the case as now proclaimed by the impartial testimony of history. The same policy on the western continent, of which this mighty power once dominated two-thirds, in half the same time drove the Spanish dominion out of every continental possession and made the name "Spaniard" a byword, even in the islands now tributary to that power.

The entire history of the discovery, conquest and spoliation of the new world by Spain is the "bloodiest record in the book of time."

Columbus has the doubtful honor of being the first American slave trader, and the system of native and African slavery introduced by the Spanish occupation exterminated the original inhabitants of the islands first discovered and colonized and has left the native races of half the continent after four centuries of civilized occupation, in the rear of all the Christian peoples on earth. The driving wheel of this remorseless policy was an insane hunt for gold, which desolated half the American continent. Its government was a reproduction of the mediæval half barbaric union of church and State, which finally went out in a series of revolutions which have landed every Central and South American State in the hazardous and almost impossible attempt to establish republican institutions. There is nothing in the order of affairs amid which the discovery of America and the Spanish conquest and occupation of three long centuries were included that commends itself to our American children and youth, save as a colossal warning. Mr. Seward used to say that "the most profitable investment ever made by the State of New York was in the geological survey which demonstrated that there was no coal in the State. Henceforth no more fortunes would be wrecked in the search for coal in New York." It may have needed the awful experience and terrible failure of the attempt to govern the new world by Spain, Portugal and France, the great Latin powers of four centuries ago, to demonstrate the absolute impossibility of that sort of administration of human affairs to build a nation in a new world. Two hundred and seventy-five years ago there was no power on this continent beside these. One hundred and fifty years ago the only exception to their absolute rule was a few English and Dutch colonies on the northern Atlantic coast, with a population less than the present State of Massachusetts. To-day with a trifling exception, neither of these great powers rules an acre of territory on this continent; the Anglo-Saxon race dominates North America, and constitutional government of the republican type holds every nation from Greenland to Patagonia. After that demonstration the Monroe doctrine is seen to be only the result of a process so decisive that the man who contemplates the restoration of that sort of thing on the American continent is a harmless visionary, or one of those people who, never having learned, never forget. That there are still people of that sort we are reminded by the gasconade of certain leaders of our new French Canadian immigration to the effect that, while France in Europe is moving on to a successful republic, New England is to be changed to a new France, of the type of four centuries ago.

Columbus's magnificent conceit of himself so imposed on the court of Spain that he forced from his sovereign an arrangement which, if carried out, would have made him the most powerful monarch in christendom and the richest man in the world. His chronic complaint of injustice amounted to this—that he was not confirmed in claims and pretensions never yet realized outside a lunatic asylum. But, along with this splendid endowment of imagination and all-subduing will, his executive capacity was so feeble that he could not govern his own little ship's crew. He never planted a colony that did not come to grief as soon as he was out of sight. He was a monumental liar; by his own confession, falsified the journal of his voyages and tried to deceive everybody, from the sailors and the savages to the princes he served; indeed, it is probable he was one of that considerable class who never know when they are deceiving themselves. He abandoned his wife; his biographer was an illegitimate son; and the whole Columbus tribe seemed to have a bad habit in the same direction. He left Portugal under some indictment for crime that required a royal sanction to lift. He was the first American slave-trader, and managed the natives of the islands with a treachery so stupid that, from the most affectionate and confiding friends, they became his most ferocious enemies. While penetrated to the heart with a desire for their salvation in the world to come, he virtually enslaved the entire native population, and, in less than half a century, the whole race no longer existed in the world that now is. So senseless and outrageous was his entire administration of affairs that, with all the prestige of his brilliant success as a discoverer, he was finally dropped by the government and died in an obscurity that threatened oblivion to his name and the memory of all he had done. That he was treated with severity and probably with injustice, misunderstood, and in some ways deprived of his just reward, was inevitable.

First and foremost should be exhibited at Chicago our American system of common school education, in every department, from the little plantation primary to the State University. The common school is the core of the republic. Because of this the Union "came off conqueror" in 1865, and to-day comes off more than conqueror in the establishment and steady growth of the people's school in every State of the South and every Territory of the Union. Higher than all other banners let the glorious flag be lifted above the American school house. Let every rival or hostile scheme be remanded to its own place, as subsidiary and supplementary to this, the people's university of American citizenship. The one point in which the management of the exposition has been criticised is its apparent indifference to this, the most characteristic exhibit of American civilization. If there has been any holding back in the arrangements for the representation of this fundamental American institution let the educators of every State demand of Congress, or failing of that appeal, of the people, that there, at the very heart of the exposition, shall stand the mighty cradle in which young America is rocked, not "to sleep," but to the wide-awake manhood and womanhood of this "grand and awful time." And around this centre should be grouped a complete exhibition of all the agencies and institutions that supplement the people's school in our American system of education; the private, religious, industrial, artistic, musical, academical, collegiate, university and professional schools of every degree; the churches. with all their blessed agencies for the uplifting of the people; the myriad-handed charities, with the legislation for humanity induced by them; the wonderful realm of American journalism; especially a representation of our new literature—altogether the broadest possible exhibit of what goes to the making of the higher life of the nation.

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CHOLERA AS A MANIFESTATION OF DIVINE DISPLEASURE.

One of the most incongruous beliefs of these *fin de siecle* times is that not infrequently preached by ministers of the Christian religion concerning the chastisement, by a superior Being, of the human race through epidemics. These are the comments of the Pittsburgh *Medical Review* on a sermon preached in Pittsburgh, an extract from which is given below, in which the speaker traced the present cholera epidemic to the wrath of God. He believes that the greater virulence of the disease in the Orient may be attributed to the sinfulness of the people whose lot it has been to be born in that part of the world. On the other hand, the secret of our own comparative immunity is thought to be due to the fact that God is well pleased with his children in the Occident. When ministers of the gospel once understand that cholera and many other diseases are the result purely of the workings of the laws of nature they will be less likely to drive so many intelligent members of their flock to agnosticism or infidelity. When it is remembered that cholera is no more a sign of the wrath of God than is the garden of a lazy agriculturist invaded with weeds, the absurdity of the belief is manifest. Cholera germs are plants, and plants out of their proper sphere are weeds, consequently when we permit them to gain entrance, to grow and multiply in our system, it is simply our own ignorance, associated with unsanitary habits, that is responsible for the affliction. Divine wrath and weeds are very different things, and should not be confounded.

Escaping the Plague.—Rev. T. N. Eaton, pastor of the Oakland M. E. church, last evening discoursed on "Escaping the Cholera," referring to the pestilence of cholera now devastating Asia and some ports in Europe. He said there were many persons much disturbed by the dangers threatening England and America from an invasion of the plague, but the excellent quarantine regulations of this country, helped by the bestowal of so many blessings by God upon us would in all probability keep the disease outside of the United States. It was the duty of the preachers to comfort the people and remind them of those facts. He concluded:

"It can scarcely be doubted that the plague is sent to discipline the Christian, and is a direct result of Divine Providence. It will be observed that the epidemic, as all great plagues have done since time began, started in the East, where the religion of Christ is denounced by infidelism. There the most deaths occur. It is rare so dire a plague afflicts us, which proves that we are recipients of God's choicest blessings, and we should show we appreciate them by becoming Christians."—*Com. Gaz.*

MEDICAL.

MEDICINE IN FICTION.

We laughed when Mark Twain proposed to deliver a course of lectures upon chemistry before the Royal Society, adding that he was "in a position to do this with greater freedom, because he knew nothing whatever about the science," but the public do not laugh at, but take in all seriousness, the medical incidents and opinions scattered up and down the pages of the novels and poems which so commonly deal with medical matters. What with the medical books which everybody nowadays feels it his duty to peruse, and the quack advertisements which force themselves upon his attention wherever he turns, it is impossible to avoid collecting a curious amount of medical information of a sort which is certain to find its way sooner or later from the end of the pen of the ready writer. This is, perhaps, not to be wondered at, considering how large a place ailments and modes of treatment occupy in our thoughts and interests. The freedom with which the novelist discusses these questions is, of course, due to the principle which led to Mark Twain's droll suggestion, though it is not acknowledged with such charming *naivete.* As every man is expected to be a fool or a physician at 40, a novelist can hardly be blamed for assuming the latter character, and he usually does assume it with a startling confidence.

One of the strange medical things in "Monte Cristo" is the way in which the old revolutionist, Nortier, manages to live on, paralyzed in every part of his body except his eyelids which he winks freely. Yet the old fellow reasons acutely, and finds no difficulty whatever in swallowing food or drink. Dumas seemed absolutely unaware that such a paralytic condition as he describes in Nortier's case involved of necessity brain damage of the most serious kind. Elsewhere Dumas made a guillotined head speak and weep. In one of his tales in the volume, "Les Mille et un Fantimes" there is a story of a man engaged in making experiments on heads fresh from the guillotine in the Reign of Terror. The doctor is shut up with a sack of fresh heads in a little mortuary chapel, when a voice from one of the heads called him by his name—Albert. "It was the head of Solange; I thought I was going mad. I cried three times, Solange, Solange, Solange! At the third time the eyes opened, looked at me, let two tears fall, and darting forth a dim light as if the soul were escaping, they closed never to open more." Then there was Krook, the "Lord Chancellor" in "Bleak House," who went off the earthly stage by spontaneous combustion. Dickens might well be excused for falling into an error which was at that time commonly believed in by people who ought to know better. Bulwer Lytton went in for medical marvels in "Zanoni," but as he was a student of mystic lore, and actually learned magic from a professed thaumaturgist, the Abbé Constant, his wonders were attributable not so much to his ignorance of medical science as to his belief in the elixir of life and the transmutation of metals.

In "Called Back" we have the blindness and subsequent cure of the hero, and the mental aberration and subsequent recovery of the heroine. There really was some medical knowledge displayed in both these "cases." The peculiar blanching of the heroine's skin after her shock was not at all badly conceived; her partial loss of contact with the outer world was not at all an ill-contrived symptom, though the facility with which she moved about, and posed like a sane person before her lover, quite lifted her case out of the region of the actual medical world as known to physicians.

It is not surprising that even George Elliot, with all her knowledge of the innermost workings of the human mind, should have lost her way when dealing with the morbid changes of mind and brain. Tito's father, Baldassare, had been a great scholar, but after a long illness his memory, upon recovery, became a perfect blank; he could recall nothing of his scholarship, though he had not forgotten who he was. With all this Baldassare is not represented as having lost his reason; he remembers his past life, but can no longer read nor write, or recall any of his scholarship for which he had been so distinguished. It was not amnesia or agraphia with which he was afflicted; it was a form of cerebral disease known only to the eminent novelist.

Wilkie Collins made a specialty of his medical knowledge, and it was on this account that he was induced to undertake an anti-vivisection novel, which he published under the name of "Heart and Science." The work was equally unsatisfactory both to the persons who inspired it and to the public. The vivisector may be clearly enough conceived in the novelist's mind, and if his laboratory were the only stage on which he acted, the drama of life would be easily dealt with; but the vivisector in the ordinary relations of life—more especially as the family physician—is another character altogether, and cannot readily be made to fit the circumstances necessary to make a good sensational novel. Wilkie Collins' effort in this direction was a complete failure, and his medical men and his wonderful drugs could never have existed outside his own imagination.

In Dickens' "Tale of Two Cities," where Sydney Carton substitutes himself for the condemned Evremonde, we have premonitions of the chloroform which was to be discovered fifty years later —the chloroform of popular imagination, however, and by no means the $CHCl_3$ of the Pharmacopœia.

The poets are, if possible, even worse offenders in the matter of their death scenes than the novelists. A man pulls a two-drachm vial of poison from his breast, swallows the contents, proceeds to make a two-hundred-line speech without a pang or a gasp, staggers gracefully to a conveniently placed seat, drops upon it, clasps the region of his heart with both hands, and dies after a little convulsive movement of the legs. Another is run through the chest with a sword, he falls after some appropriate "business," but he usually raises himself to a sitting posture and makes a speech full of the most beautiful sentiment, sighs deeply, and dies. Heart disease carries off heroines in a fashion quite unknown as "broken heart," and possesses characteristics which must not generally be associatied with fracture of so important an organ.

The matter has its serious aspects, for novels occupy an important position in the literature of the day, and form almost the sole mental pabulum of half the mothers of England, especially among the well-to-do class.—*British Medical Journal.*

WATER-BRASH FROM EATING OATMEAL.

BY B. W. RICHARDSON, M D

That a person may have too much of a good thing is shown by the following contribution to *The Asclepiad:*

An obstinate case of pyrosis came under my care some years ago, and resisted all forms of medical treatment. The dietary of this patient, an orderly and temperate man, seemed to call for little supervision; in fact, I never remembered to have had under my care any one who was simpler or more methodical in the way of feeding and drinking. I recommended him to leave off tea, and he obeyed, but with no beneficial result. Coffee was withdrawn, with no better result. The patient was an abstainer from alcohol and did not smoke, so reforms were not called for in those directions. For a time he left me and consulted another physician—I believe more than one—but after a few months he returned, complaining of the continuance of the symptom that so oppressed him. He really suffered actually. Each morning, between breakfast time and luncheon-time, the water-brash come on. The quantity of food ejected from his stomach was considerable, and the ejection was preceded by a sense of sinking at the heart and faintness, which sometimes alarmed him. By the free discharge of the fluid from the stomach he was invariably relieved, and rarely had any return of the symptoms until the following day.

The story of the repetition of the attack, always at the same or about the same hour, was so peculiar and so often repeated that I could not fail at last to attribute it to something taken at breakfast; and, finally, I began to suspect that a dish of oatmeal porridge might be the enemy. He had taken this for breakfast for many years, and had never thought it injurious, and when I named my suspicion he was incredulous. However, he took the advice to leave off oatmeal "on trial," and from the day of leaving it off had no return of his symptoms. Six months later he ventured the oatmeal diet again, and in a week was as bad as ever. Once more he left it off, and once more was completely cured. This was observation on a patient; but, for experiment's sake, I tried the effect of oatmeal diet on myself, with the result of setting up in a few weeks as decided an attact of pyrosis as could be observed or felt. In my own case I found that barley-water, repeated for a time, produced the same result. After making these observations, I continued to inquire, in all instances of pyrosis I have since met with, whether oatmeal formed a part of the dietary of those affected; and I have found so many corroborative experiences, that I am led to think there is no more frequent cause of pyrosis than oatmeal or a similar fermentative food.—*Literary Digest.*

THE TREATMENT OF SEA SICKNESS.

Dr. Herbert Danvers gives in the *Lancet* the deductions drawn from several years of experience as a ship's surgeon as to the best method of treating sea sickness.

He divides the cases into three classes, according as (1) head symptoms largely predominate, (2) gastric symptoms largely predominate, or (3), the most common, those in which one finds head and gastric symptoms equally combined in minor degrees, and which may be spoken of as mixed cases.

Cases of the first kind are most frequently met among nervous and delicate women, men in feeble health, and children; those of the second group among young women and men of the burly or "liverish" type, while the third class seems to be no respecter of persons. As to treatment in the first class, the author first causes an evacuation of the bowels, and then gives a nerve sedative, as some of the bromides, aromatic spirit of ammonia, or effervescing hydrobromate of caffeine. The patient's mind should be diverted.

The second group of cases is treated by first giving two glasses of warm water, which is of course ejected from the stomach, followed by a mixture containing carbonate of bismuth, bromide of potassium, dilute hydrocyanic acid, and spirit of chloroform. Another prescription is bicarbonate of sodium and carbonate of bismuth with chlorodyne. Lemon or lime juice, dilute hydrochloric acid with infusion of cusparia, or cocaine tabloids are sometimes useful just before meals. Alcohol may be employed in treating cases of the first group, but not of the second. But little fluid should be given, and only the blandest of food, as tapioca with mutton broth or something similar.

For the third group of cases, bicarbonate of sodium with compound tincture of cardamom or nitrohydrochloric acid and gentian during the day, with a pill of calomel, colocynth, and hyoscyamus at bedtime, is recommended. This is said to have the patient on deck with a smiling countenance next morning. Cold meat with dry toast, fruit, weak tea, brandy and soda, or possibly a little whiskey, is the diet for these patients. After mentioning the various kinds of sickness produced by travel on different vessels and by different motions of the same vessel, the article closes with the encouraging information that the only sovereign remedy for all kinds of sea sickness is *terra firma.*

Digestibility of Cheese.—The digestibility of various kinds of cheese has been carefully tested by a German chemist. Chester and Roquefort cheese took four hours to digest; genuine Emmenthaler, Gorgonzola, and Neufchatel, eight hours; Romadour, nine hours; and Kottenberger, Brie, Swiss, and ten other varieties, ten hours.

"Knock-out Stuff."—The drugging of victims with opiates, with a view to robbery, caused a New York judge recently to inflict the severest penalty permissible on some robbers who practice it. "Knock-out stuff" is the name given the mixture of opiates used by the gang convicted.

Acid Aerated Water.—Dr. E. Jakobsen suggests that, as alkaline media favor the growth of the comma bacillus, aerated beverages should be made acid at the time of a cholera epidemic. He recommends a carbonated water containing hydrochloric or citric acid in the place of alkaline carbonates. In Berlin aerated water is prepared in this way, containing in the pint 4 gr. of hydrochloric acid or 8 gr. of citric acid. With the same object a highly astringent red wine has been made a medium for administration of citric acid. —*Apotheker Zeitung.*

The Liver, Not Flowers.—Buxom Widow (at evening party)—Do you understand the language of flowers, Dr. Crusty?"

Dr. Crusty (an old bachelor)—No ma'am.

Buxom Widow—You don't know if yellow means jealousy?

Dr. Crusty—No ma'am. Yellow means biliousness.

The Creator Knows.—"Doctor," said the patient, "I believe there's something wrong with my stomach."

"Not a bit of it," replied the doctor promptly. "God made your stomach and He knows how to make them. There's something wrong with the stuff you put in it, may be, and something wrong in the way you stuff it in and stamp it down, but your stomach is all right." And immediately the patient discharged him.

Miss Backbay of Boston—No, we do not speak any more. I don't recognize a girl who indulges in profanity.

Mr. Pitts—You don't mean to say—

Oh, yes; I do. We were talking of Browning, and she said, Oh bother Browning!

But bother is not profanity.

Maybe not, but bother Browning is.

HYGIENIC.

DANGERS OF MALT LIQUORS TO NURSING WOMEN.

BY J. WELLINGTON BYERS, M.D., CHARLOTTE, N. C.

A knowledge of the influences of food and drink upon the compositton or quality of the nursing mother's milk is certainly one of the most important and desirable of questions in dietetics. Notwithstanding this fact, however, exactly what is conducive or opposed to normal healthy lactation has not been fully and accurately determined, and there exists much general ignorance among the profession in respect to these matters. In no direction is this more obvious than in connection with the common practice of administering alcoholic beverages in the form either of ale, beer or porter to nursing women for the purpose of increasing the milk supply. It is beyond question that these articles are capable of doing much injury to both mother and child, and their indiscriminate employment for such purposes should be interdicted. It has been a custom to prescribe and permit the use of drinks of this kind influenced by the belief that they were entirely harmless milk stimulants, which is erroneous. Investigations into the validity of these pretensions demonstrate that they are injurious and their use not in keeping with nor supported by rational methods. Physiology teaches and experiences show that articles of this character almost always increase temporarily the activity of the mammary gland, and that there are few cases of normal lactation in which this increase is necessary or desirable. To the contrary, it is inadvisable from the fact that it causes changes in the composition of the milk which may give rise to serious symptoms in the suckling.

The truth is, in this practice of using alcoholic drinks the profession has followed the customs and whims of the laity, rather than the usual process of instructing and leading the latter. That there are conditions and circumstances in which the administration of malt liquors is of decided benefit to both mother and child no one will undertake to gainsay. But that they are indicated in every instance of deficient lacteal secretion, or that the exigencies of the case ever render necessary their use to the extent as is commonly employed, none can maintain or justify. The promiscuous and general practice of using malt liquors by nursing women is irrational, does a vast amount of harm and often causes disease in the suckling. We know that the mammary gland for all practical purposes, may be considered as an organ possessing functions of a twofold or mixed character, namely: secretion and excretion. Under normal physiological conditions the first of these processes is in almost exclusive operation, though as shown by experiences, the slightest alteration in the condition of the organism, whether of an emotional, medical or dietetic character may so change this secretion that it becomes to all purposes and effects an excretion. and an innocuous, healthy pabulum for the child is converted into a deleterious or poisonous substance. There are a number of instances on record corroborating this position, and it is not necessary to rehearse them here. They demonstrate that such agent or agencies as emotional excitement, drugs, food and drink, when of an unpropitious character, and used by the mother to influence her secretions, are capable of injuring or even destroying the infant child. Physiology shows that a large proportion of the milk secreted by the mammary glands is derived from the albuminous substances ingested as food, and that a highly nitrogenous dietary in the mother almost invariably causes an increase of the proportions and quantities of the fat and albumen in the milk. Now, experience is very general in showing that these substances both have a decidedly injurious effect upon the digestion of the infant when taken into the stomach in excessive quantities. From a number of experiments conducted by Zaleski (Berliner Klinische Wochenschrift) he found these substances in the milk in excessive proportions whenever the mother had partaken of alcohol. In each case where the mother was tested with malt liquors the fat and albumen appeared and caused more or less disorder and distress of the digestive apparatus of the suckling. These deleterious influences, however, were not the worst. Analysis of the milk further revealed the fact that it actually contained alcohol and the micro-organisms peculiar to malt liquors; that the liquor drank by the mother actually passed out in toto through the mammary gland and on into the child's stomach and there produced all the phenomena incident to digestive disorders and febrile disturbances. These facts point to the belief, and support the attitude, that the mammary gland under certain conditions exercises the function of an excretory organ, and that under some circumstances it becomes nothing more than a filter through which the food and drink taken by the mother passes directly into the stomach of the child. This being true, we are in a position to understand and appreciate the importance of the relations of the diet of the mother and the well-being of the child. When we prescribe alcohol for the mother, we at the same time do so for the child. This interpretation of the question may be emphasized by recalling the history of the commotion that was produced a number of years ago in the large northern cities when the newspapers heralded the fact that the public were being served with swill-milk—milk secreted by swill or slop-fed cows. It was soon recognized and understood that the milk of these cows was manufactured by organisms which must necessarily partake of the character of the food furnished them.

That putrefying food was a dangerous diet even if it had passed through the udder of the cow, where it was simply elaborated or filtered, and remained the same. The analogy between the human and cow's milk, in this respect, is identical. The diet of the mother is a stage in the milk producing process, and while she is not limited to one article, as is the case of the slop-fed cow, still the milk she produces is, in every instance, the result, and only the result of the food of which she partakes. If it be improper, unsuitable or contaminated, the milk will express this in a proper ratio. In the case that beer or ale is administered, it will find this outlet, and while it does not evidence deleterious influences to the extent of producing the worst results in the form of either colic, indigestion or diarrhœa. in every instance its effects are present, and these are always among the possible results of its use. The effects of fat and albumen, when present in breast milk in excessive proportions, in producing evil effects on the child, are too well recognized to dwell upon. That the more severe of stomach disorders, gastro-intestinal catarrh, enteritis, or even cholera infantum, are due to these substances, as a result of the abuse of malt liquors in the mother, I am certain, though such is not generally admitted or recognized. The abuse of malt liquors in hot weather is particularly dangerous. The functional activity of the skin is largely increased, and a greater proportion of the fluids are eliminated through this channel. From this fact we will necessarily have the products of the mammary gland in a more concentrated form and a larger proportion of the alcohol present in them. Again it is a matter of the commonest experience that certain articles of diet, such as acids, fruits and fermentable substances, often disturb the digestion of the child without producing any change in the milk that can be detected by chemical analysis or otherwise. The individual differences in women, in this respect, are very great. In the foreign beer-drinking element in the population of the larger cities during the summer season, the dangers from this source are at their maximum, and can scarcely be estimated in figures. These people following their national habits and appetites for drink, consume enormous quantities which cannot fail to have a bad effect upon their offspring. Never once cognizant of the dangers from this source, and unadvised by the physician in many instances, they are the victims of ignorance. Whenever a child does not thrive, and no other cause can be discovered to which to attribute its indisposition, we should be careful to ascertain if the mother is using malt liquors to help in the production of her milk. Take care not to advise a woman, whose milk supply is reasonably full, to resort to beer or other liquors in order to increase it. Always impress upon them the increased risk to the child incurred by using them. In conclusion I will add that I am fully convinced of the importance of this section in dietetics, and that we have in its abuse a potent source of danger to the child, I am certain.—*Annals of Gynaecology.*

USE MORE SOAP.

BY RUTH ARGYLE.

A lady whose thick sallow skin caused unceasing worry, consulted an eminent physician as to a possible cure; his answer was more forcible than courteous: "Well, in the first place, go home and wash your face and hands *clean.*" Horrified she declared that she had washed them several times during the day. "What I mean is this, wash with soap thoroughly." Ah! she had never used soap on her face. When upon returning home she used the soap, then rinsed in clear water, she was quite mortified to find her face actually *dirty.* In obedience to the doctor's advice, this lady pursued the following course, which may prove beneficial to others: Every night, just before retiring, she bathed face, neck, and hands thoroughly in soapsuds, using, of course, fine toilet soap; then rinsed in clear water, and dried the skin on a soft Turkish towel, rubbing until quite free from moisture. If any sign of roughness or sunburn appeared, a few drops of glycerine were rubbed in.

To do away with the oily appearance the doctor prescribed this diet: Lean meats, plenty of fruit, vegetables in their season (not cooked in grease), no pastry nor cake, brown sugar nor molasses, but oatmeal, cracked wheat, farina and the like, sprinkled sparingly with white granulated sugar. Three times a day she stirred a teaspoonful each of cream of tartar and sugar into a tumbler of water, and drank it, in order to cool her blood. This was an agreeable medicine, both in the taking and in the effect. All heat and fat-producing viands were forbidden, as well as coffee with milk, chocolate, and beer. Plenty of outdoor exercise, with a veil to protect the face, this wise doctor recommended, also indoor games, such as shuttlecock and battledoor, to stir the sluggish blood. Heart and body were employed to conscientiously carry out this plan in its every detail. In one year the lady had a fine complexion, a clear soft skin, and a thoroughly healthful constitution. She both looked and felt years younger.

All of these things the reader may not need to do; but to wash your face and hands at night quite clean, using soap freely, then rinsing in clear soft water, will give a surprisingly pleasant effect. The pores of the skin will become stopped up, unless thoroughly cleansed with soap, and as they throw off all the minute particles of refuse which accumulate beneath the skin, we can imagine the result when they cannot do their work properly. A sponge or cloth should be used for bathing, as a vigorous friction is required for thorough cleansing.—*Housewife.*

FACE WRINKLES.

Wrinkles are, of course, the special detestation of every woman, and when they begin to make their appearance, one of the most perplexing questions is as to how they can be removed, or at least the evil hour of their coming be put off for a time. There has recently been a good deal of nonsense printed in various channels as to this subject, and one of the most cherished fads is that the steaming of the face will remove them. This is one of those half-truths which are simply deceit and disappointment. Wrinkles appear because the fine muscles of the face lose their tone, the tissue shrinks, and the skin fits itself to the depressions which are thus left. It is a mistake to suppose that wrinkles can be wholly eradicated, especially those which are due to advancing years. Let us "grow old gracefully," and accept the inevitable with the best grace possible. A cheerful disposition will do wonders toward lighting up the face and making one's friends forget or overlook entirely the signs of advancing years. But wrinkles frequently come on prematurely, and prove extremely vexatious.

It is unquestionably true that a proper, thorough and careful course of face massage will do a good deal to help things, where the skin has become dull and lifeless, as will especially happen in cases of general decline or ill-health. From two to four times during each twenty-four hours the face should be gently but systematically rubbed, the best method being to employ a fine towel or a bit of red flannel. The finger ends answer very well, but it is more difficult to use them without weariness. It will be noticed after a few days that the skin is gaining in tone and vigor, when the degree of vigor employed may properly be increased.

Bad air is one of the most potent causes of wrinkles, and the remedy, of course, is the getting of good air. Excellence of the highest degree may not be attainable; if not, let us get the best that we can. With good air should come good living, and plenty of nutritious food, especially that which has fat-producing qualities. Massage of the face is well recommended, using a light, gentle, circular motion of the fingers, while much may be done by cultivating flexibility and voluntary motion of the muscles of the face, especially those affecting the wrinkled portions. And it may not be amiss, though it be a delicate matter, to suggest that an overworked, thankless, hopeless life will inevitably wrinkle the fairest face with furrows that no agency this side the grave can remove, till the cause shall have been lifted.—*Good Housekeeping.*

Dusty Rhodes—If I had money I should get my life insured for $50,000.

Fitz William—What good would it do you?

Dusty Rhodes—No company with an eye to business would let such a policy holder starve.

It is a sad fact that none of us are as handsome as we think we look in a uniform.

ADULTERATION.

GILT-EDGE BUTTER COMPOUND.

Gilt-edge butter compound is an article of commerce sold for the purpose of fraudulently increasing the weight of butter. The powder has been examined by Willey (Jour. Chem.) and found to consist of 29.50 per cent of pepsin and 70.50 per cent of anhydrous sodium sulphate, besides a trace of some pink coloring material. To use, one gram of the powder is stirred into one pint of fresh milk of blood temperature, and then sufficient salt and one pound of fresh butter are added. On churning, the product, closely resembling pure butter, will be found to weigh two pounds. The butter experimented with consisted of 15.92 per cent water, 80.53 per cent butter fat, 0.38 per cent ash, and 3.17 per cent casein. The adulterated sample was found to contain 49.55 per cent water, 45.45 per cent butter fat, 1.34 per cent ash, and 3.66 per cent casein. Experiments showed that pepsin, pancreatin, and trypsin form an emulsion with butter, in consequence of which the latter may take up an equal weight of milk without being thereby appreciably changed in general appearance, excepting as to become a little softer; other digestive ferments will probably behave similarly. In the powder under discussion, the sodium sulphate merely serves as a diluent for the pepsin.—*Western Druggist.*

FOOD FOR COFFEE DRINKERS.

The superintendent of a big milling company over in South Brooklyn sat in his office a few days ago and seemed amused at the man who was unloading a wagon in front of a coffee firm directly opposite. It was a day when men discarded coats and vests for their shirt sleeves in the effort to obtain relief from the heat. Perspiration rolled down from the face of the man unloading the wagon, and it was evident that he did not see any joke in his employment.

When asked what he was laughing at, the man who was amused answered: "Why, don't you see what he is unloading in those barrels?"

A close look showed that the coffee mill was receiving a wagon load of stale bread and a light suddenly dawned upon those in hearing. They were anxious for information, and the superintendent had this to say which will interest coffee drinkers:

"This fellow has been in the employ of that firm for a long time. It was several months after I first noticed him before I discovered the nature of his trade. He owns his own horse and wagon, and every night visits a number of bakeries and hotels in the city and for very small sums buys all their stale stock of bread. He has an arrangement with this company, which purchases all he can deliver."

"What does the company do with it?" was asked in three voices.

"Oh! that is where the wooden-nutmeg idea comes in, and I'll bet that we have South Brooklyn millers who can discount the shrewdest Sam Slicks who ever lived. Why, they have a process over there for grinding the bread which is hard to a powder. It is colored, moistened, and then, when soft and pliable, pressed into the finest imitation coffee beans you ever saw."

"Give us a new one," said one of the listeners, incredulously.

"It's a fact. Why, I have had some. You can take a sample in your mouth and in a few minutes it will become soft, like dough, but if you were not on the lookout for the fraud you would not discover it."

"But a house of that standing would not adulterate its goods or deal in imitations?"

"Wouldn't it? You don't know them. We have got another place over here which manufactures sago out of potatoes, butter from a combination of ingredients known only to the workmen; claret and other wines which never saw Ohio, California, or France; and other fakes, and the wonder is all these crooks seem to prosper."

HOUSEHOLD.

RICE AND ITS PREPARATION.

BY D. M. MORRELL.

Could plants lay claim to aristocratic position, as representing an old family, rice might safely claim to be of the most ancient pedigree. It is the earliest cereal known. Originally a native of India, it has crossed the ocean and made a home for itself where heat and a moist soil could be found. It grows in all warm portions of the globe, and furnishes the principal food of nearly one-third of the human race.

The direction, "Cast thy bread upon the waters, for thou shalt find it after many days," gained its fitness by applying it to the method of planting rice in Egypt. When the Nile overflowed its banks, men sailed upon its waters, scattering rice in all directions. This sank into the ground, and after the ebb of the water, sprang up rapidly. The fields of growing grain resembled barley, with a look a little like oats. To make the grain fit for food, after it ripens, it is shelled and quickly dried. Chemists show by analysis that rice contains a larger amount of fat-forming or heat-making properties than any other grain. It would seem then, that nature had made a mistake in nourishing a heat-producing food in a part of the world where those who have to eat it would naturally prefer to keep cool.

Although rice is not easily fermented, the Japanese and Chinese make several varieties of intoxicating drinks from it. The British distillers also use it to some extent. Saki, the beer of the Japanese, is a product of rice, but it must be heated before being drunk. Arrack, an Eastern drink, is made from rice, and several kinds of wine are made from it by the Chinese.

Rice is the emblem of fertility, and the custom of throwing it after a bridal couple arose from a wish that they might be blessed with a large family. One wonders that it still plays its part at weddings. Not only in such gay scenes, but in the sickroom this grain finds a place. Rice is curative in its effects upon diseases of the bowels. A tea made from rice, browned after the manner of coffee, is a safe drink in cases of such diseases as dysentery.

Birds are very fond of the unhulled grain, which is called paddy. It is a standard food for parrots, but wild birds eagerly devour the uncultivated varieties which grow in the fields of the Southern States.

Rice is so healthful an article of food that it should be found often upon the table. Simply boiled, it is an excellent substitute for potato at dinner.

Rice may be prepared and served with cheese as macaroni is commonly cooked. If there is a little left from dinner put it in a bake dish, grate cheese over it, so continue until all the rice is used, having the last layer of cheese. Season with salt only, and pour in milk enough to come to a level with the last layer of rice. Bake in a quick oven until brown.

The following recipes for cooking rice are not claimed as original. They have been collected during the past ten years, but they may be depended upon as safe rules to follow:

TIMBALE OF GROUND RICE.—Cook rice in milk till tender; line a buttered mould with it. Thicken a half-pint of skim milk with two tablespoonfuls of ground rice. Boil two minutes, beat in an egg, fill the cases, steam half an hour or an hour, according to the size of the pudding. It can be steamed in the buttered mould. Turn it out. and serve with any tart fruit syrup.

RICE BREAD.—This may be made by putting one-third of cold boiled rice to the sponge when bread is set to rise. The loaf will be moist, not because it is raw, but because it is its nature.

RICE GRIDDLE CAKES.—One pint and a half of cold boiled rice; put to soak an hour in warm water enough to cover it. Mash the rice well and make a batter, just before using it, with one quart of sour milk, one light quart of flour, salt to taste, and two eggs, well beaten. The batter ought to be moderately thick. Stir in a teaspoonful of soda just before frying. Fine batter cakes may be made of stale light bread; trim off the crust, soak the bread, and make it by the above recipe. Sour bread may be used this way.

ECONOMY PUDDING.—One-half pound of rice, one pint of milk, one-half pound of sugar, some preserve; boil the rice in water till nearly soft, then add the milk and boil again, stirring it all the time; add the sugar; dip blanc-mange moulds in water; fill with rice; when set, turn on to a flat dish; serve with preserve of any kind, or sugar and cream or custard.

RICE PUDDING.—One teacupful of boiled rice, the yelks of four eggs and the whites of three beaten separately, sugar to sweeten, one-quarter pound of suet chopped very fine, flavor with vanilla and add raisins. Boil in a mould one and one-half hours, and serve with sweet sauce.

RICE MERINGUE.—One cupful of boiled rice, one large pint of milk, two eggs, one large cupful of sugar, one lemon. Boil the milk; stir in the rice. Beat the yelks with one-third of the sugar, then add to the milk and rice, and cook until thick as soft custard. Take from the fire and grate in rind of lemon; pour into a buttered dish. Beat whites with the rest of sugar, and add juice of lemon; pour over the pudding and brown. A delicious pudding.

RICE AND RAISIN PUDDING.—Wash a teacupful of rice, and simmer till tender, in about a pint and a half of milk; sweeten it to taste. Place a thick layer of Sultana raisins in the bottom of a pudding dish, pour on them the boiled rice; place two or three tiny bits of butter on top, to prevent burning, and bake for three-quarters of an hour. When quite cold it should be firm; gently disengage it with a knife from the sides of the dish and turn out, when, if the rice was carefully poured in, all the raisins will be on the top. The pudding dish should be buttered before using.

For a breakfast dish cook rice the day before, and turn it into a deep dish to stiffen. The next morning cut in thin slices and fry brown.

The ways of using cold rice are limited only by one's culinary skill. Family soups are improved by the addition of rice.—*London Housewife.*

MULLIGATAWNY.

JULIEN VINSON.

During some years there has been many times a discussion in divers works on French India—either in the lucubrations of the Jacolliots and other fantastic writers or in romances, more serious but not less unjust, signed by Joseph Maire—about the mode of making an Indian culinary preparation, called water-pepper, but which might be more justly entitled fire-water, it being endowed with singularly exciting properties. The preparation has been named in the vulgar language of Pondicherry *mul'gutani*, which is correctly *milgutannir* or rather *milagunir*, that is to say, "pepper water." The English have corrupted this into mulligatawny. It gives its name to a soup which figures at all the great London banquets, especially those of the Lord Mayor and Oriental nabobs.

I have been a long time seeking a recipe for this preparation; but, of all the persons of whom I inquired, not one was able to give me an exact recipe. I was usually told that mulligatawny was ordinary bouillon in which was put some curry powder.

Lately, in arranging in the library of the Asiatic Society the Tamil books belonging to the Ariel collection, which was bequeathed to the Society in 1855, I came across a treatise on cooking *Pagasastiram* (Pakaçastra) translated from the Telinga by Kaçiviçvanathamodely and printed at Madras in 1846. Chapter XII (pp. 50–54) of this book gives several recipes for *milagunir*. I translate three of the simplest for the instruction or amusement of amateurs.

The first of these is labeled pepper-water with tamarinds. For it you take an ounce and a quarter of pepper, as many grains of *tuvarei* (the shrubby clover called cytisus) and some leaves of the margosa tree. Parch these with fat in a spoon; then crush them well on a stone, sprinkled with curry. Mix with water enough and add sufficient salt, then put in the compound an ounce and a quarter of tamarind juice. Let the whole be cooked until it has boiled three times, then add mustard, cummin, and roasted fenugreek.

A second recipe is: Take five-eighths of an ounce of pepper and as many grains of *tuvarei*, roast them, and mix water with them. Add salt and lemon juice and boil the compound. During the boiling add mustard, fenugreek, cummin, and a handful of the leaves of the margosa. To perfume it, put in some branches of *moringa* and always coriander seeds.

Still a third method is to put in some fresh water one ounce of pepper powder, adding to it some grains of *tuvarei*. Boil the compound for an hour and a half, then add a little tamarind-juice, salt, mustard, and cummin, after having cooked all these ingredients in fat.—*Literary Digest.*

HOW TO CARE FOR SHOES.

The most obstrusive item in our yearly account is the shoe bill. It is the terror of the numerously blessed mother, and also the scantily-pursed maiden.

Still, it is a fact that is always presenting itself; shoes we must have, and respectable ones at that

All last year I revolved this problem in my mind, and determined if possible, to reduce it to its lowest form.

The first idea that presented itself was, that one is likely to have too small a stock of shoes at the outset. I know many families where a pair of shoes and a pair of slippers, with perhaps a very shabby pair of old ones, are all that is considered necessary. And these are not families where every purchase is carefully considered, before indulged in.

The shoemakers are always singing the same old song: "Two pairs of shoes bought at or near the same time will last longer than three bought in succession."

Like every other material, leather requires holidays in which to gather together its particles that wear has separated. So, if you alternate your shoes, you will find a marked difference in the length of time they will wear.

Of course, similar articles may and will wear differently with different persons. And that is a very evident fact when you are considering shoes.

To make your shoes look well just as long as there is any wearing quality left in the leather requires some labor. As the proverbial stitch in time saves nine, so many thoughts in time may save dozens of shoes.

Never wear your walking shoes in the house; have a pair of ties or slippers.

Never neglect to sew up a rip or a button on. Remember the stitch.

Never leave your shoes under the bed. They gather dust, besides fostering a slovenly habit.

Never forget to dust off your shoes before putting them away.

A little linseed or sweet oil well rubbed into the leather about once a week prevents the leather cracking. Whenever you have the misfortune to wet your feet, don't despair. Fill your shoes with oats, which will help absorb the moisture and preserve their shape. When nearly dry rub with oil, and the next day your shoes will look as well, and mayhap better than before their wetting. The oats may be dried and saved for the next time.

Above all things else don't neglect the heels. At the first evidence of so-called "running over" have them repaired. You will save the shape of your shoes, but more important than that, the uneven poise of the body would give rise to numerous backaches and muscular strain, all of which may be avoided by a timely visit to the shoemaker.—*New York Recorder.*

WINDOW CLEANING POWDERS.—A good cleaning powder for show windows, and which leaves no dirt in the joints, is prepared by moistening calcined magnesia with pure benzine, so that a mass is formed when pressed. The mixture has to be preserved in glass bottles with ground stoppers, in order to retain the very volatile benzine. A little of the mixture is placed on a wad of cotton and applied to the glass plate. It may also be used for cleaning mirrors.

EFFECTS DEPEND UPON LOCALITY.—Old Martel—Whiskey has a very different effect in different parts of the city.

Rowne de Bout—You don't say so.

Old Martel—On the Bowery it causes drunkenness; on Wall street alcoholism, and on Fifth avenue heart failure.—*Puck.*

BIRDS ON TOAST.—She (who has been to the Museum of Natural History)—The collection of birds is beautiful. The birds are mounted so naturally, on twigs and on branches of trees.

He—Were there any on toast?—*N. Y. Sun.*

IT FOLLOWS.—Customer (in restaurant)—Have you any crisp green lettuce?

Waiter—Yes, sir. Perfectly fresh, sir.

Customer—And some fresh berries?

Waiter—Some brought in to-day, sir.

Customer—And some nice green tea?

Waiter—Yes, sir. I got some just picked this morning, sir.—*Chicago News-Record.*

There's this to be said of fall fashions, that a man never goes down with the same grace that a woman does.

MISCELLANEOUS.

THE DISCOVERY OF AMERICA.

IS IT CORRECTLY CREDITED TO COLUMBUS.

We have undertaken to prove that our children should not be improperly taught that Columbus discovered America. We commence by quoting the following from Shipley's *English Rediscovery of America*:

The nineteenth century should not be looked upon by succeeding ages as the one which gave its seal and sanction to historic fable, as would certainly be the case if the United States were allowed not only to act upon blundering conclusions but to obtain the acquiescence of other nations in the same misreading of history. The vital question is not so much who discovered America, as which part of Europe, the North or South, gave the impetus to American civilization. The common assertion is, that the Columbus discovery was the only one that produced definite, permanent and beneficial results, in contradistinction to all previous expeditions; whereas, the exact contrary is the case. The American civilization of the present day is the direct consequence of the Cabot voyages, and of the English colonization, which arose out of the claims of England to the possession of the country, which were based upon these voyages.

In connection with this subject it may be remarked that Columbus came very near discovering the mainland of Florida, for he was heading directly for the southern part of the peninsula, when he was induced to turn and take a more southerly course—some say by flight of sea birds, while others affirm that he was guided by the more practical counsels of Martin Alonzo Pinzon, his second in command, who is shrewdly suspected of having been in those waters before, and of knowing better where he was than Columbus himself. This point is ably brought forward by Professor Paul Gaffarel, in his important work, "Les Decouvreurs Francais du XIVme au XVIme Siecle," published at Paris in 1888, and his account may be briefly summarized as follows:

Jean Cousin, in 1488, sailed from Dieppe, then the great commercial and naval port of France, and bore out to sea to avoid the storms so prevalent in the Bay of Biscay, arrived at the latitude of the Azores, he was carried westward by a current and came to an unknown country, near the mouth of an immense river. He took possession of the continent, but, as he had not a sufficient crew nor material resources adequate for founding a settlement, he re-embarked. Instead of returning directly to Dieppe, he took a south-easterly direction, that is, toward South Africa, went north by the Congo and Guinea, and returned to Dieppe in 1489. Cousin's lieutenant was a Castilian, Pinzon by name, who was jealous of his captain, and caused him considerable trouble on the gold coast. On Cousin's complaint, the admiralty declared him unfit to serve in the marine of Dieppe. Pinzon then retired to Genoa and afterward to Castile. Every circumstance tends toward the belief that this is the same Pinzon to whom Columbus afterward intrusted the command of the Pinta. We must recollect that Columbus had lost all hope, when he was suddenly accosted by three marines of Palos, skilled, prudent and renowned, who became his friends. Were these men inspired by the enthusiasm of Columbus? Nothing is less likely. Reflection, not passion; the knowledge of an earlier voyage, not blind confidence in a single man, decided these cool and cautious navigators. These men were three relatives of the name of Pinzon; one of them was Alonzo, doubtless the old lieutenant of Cousin. The conduct of Pinzon throughout seems to indicate previous acquaintance with the continent. Columbus's son confesses that his father always consulted Alonzo Pinzon in circumstances of difficulty. He held frequent and long consultations with the latter, both on board his own ship and on the Pinta, and decided nothing without having consulted him. At the trial of the suit between Diego Columbus and the Spanish crown, ten witnesses deposed that the admiral asked Pinzon if they were on the right course, and that Pinzon had always answered in the negative until the south-westerly direction was taken. Columbus proceeded like a man who only dreamed what he was executing, and Pinzon as though he sought a road formerly traversed by him. He was so convinced, so sure of himself, that Columbus ended by listening to him. Soon after they touched at San Salvador.

The journal of Columbus makes full admission of the part played by Pinzon: "Martin Alonzo Pinzon expressed the opinion that we should do better to sail in a southwesterly direction; before all else, it was necessary, he said, to reach the *terra firma* of Asia; we saw the island soon after."

The question of the discovery of North America by Columbus must, then, be answered in the negative, and in order to find the true discoverers search must be made among the records of voyages undertaken prior to 1508. The earliest voyages of which any substantial or definite proof can be adduced are those of the Northmen from Iceland and Greenland resulting in a colonization which lasted from its beginning in A. D. 1005 until, at all events, A. D. 1347, the year in which we have the last actual intelligence of any voyage between Greenland and Markland, as the nearest of the Norse-American colonies was called. This was probably the present Nova Scotia, being, as its name implies, a wooded country. Farther south was Vinland, corresponding to Rhode Island and Massachusetts; how much more to the southward the Northmen penetrated is not known, but traces of their long-continued presence in the country have been found in the Indian legends collected by the well known author, Mr. Charles G. Leland, and in other more palpable and tangible remains that have been found in various parts of the New England States. For further details concerning these early voyages see "The Icelandic Discoverers of America" by Miss Marie A. Brown, now Mrs. Shipley.

A ship arriving from Greenland, in 1325, brought the tithes from the American colonies, consisting of 127 pounds of walrus-teeth, which were sold to Jean du Pre, a Flemish merchant, who paid for them twelve livres and fourteen sous (Tours standard).

It is well known that Columbus, in 1477, sailed from Bristol and visited Iceland, and it would be little short of a miracle if the bishop and other learned men with whom he conversed did not relate to him all they knew on this subject, including the fact that, as their records expressed it, "Westward from Spain, over the great sea, which some call Ginnungagap (yawning abyss), there lie lands in the midst which are called, the first one northward, Vinland the good, the next Markland; still to the north there are deserts, where the Skraelings (Esquimaux) live; then there are deserts still on to Greenland" (Codex Legati Arnae Magnusen, 770); and again, "From Greenland to the south lies Helluland, then Markland; thence it is not far to Vinland, which some think goes on to Africa" (Cod. Leg. A. M. 736).

The first expedition sailed from Bristol in the beginning of May, 1497, in a ship called the Matthew. On the 24th of June, in the morning, they discovered land, and on the same day they found an island which they named St. Juan, because it was discovered on St. John's Day. The map preserved in the Bibliotheque Nationale at Paris, the only direct record we have which purports to come from the hand of Sebastian Cabot, affords the above information, and calls the land first seen *Prima terra vista*. It marks this land at the northern extremity of Nova Scotia, or of Cape Breton Island, which is not separated from the main land; St. Juan is marked in a position corresponding to that of Prince Edward Island.

Cabot's reception in England was highly flattering. To sum it up in the words of Pasqualigo, a Venetian merchant: "The news of his discoveries of the Isle of Brazil, the seven cities, and the kingdom of the Grand Khan, produced a remarkable impression. Cabot bore the title of Admiral. They rendered him great honors; he was clothed in silk, and the English ran after him like madmen." Perhaps this title of admiral supplies the missing clue as to who, in the ambiguous inscription on Sebastian Cabot's portrait, either he or his father is described as *Miles*.

The first real attempt at a colonization of United States territory was that of Sir Walter Raleigh in Virginia. So little was known of the character of this part of the coast that the report of the two captains, Amadas and Barlow sent out by him, come like the discovery of a new country although this was in 1584, nearly a century after the first voyages along the two main routes. The first colonists in 1585, had to be taken off again in 1586, and, other private attempts being also failures, the Plymouth and London (North and South) Virginia companies were formed. The former extended from Long Island Sound to Maine, and on the dissolution of the company, in 1620, the Pilgrim Fathers made their well known settlement in New England, having, curiously enough, taken their leave of the Old World at the very port which had given its name to the company on whose abandoned territories they now landed.

[To be continued.]

HOME OF THE HORSE.

HOW TO BUILD A STABLE.

The proper care of the noble animal the horse should be one of the first duties of every owner. We append herewith a very sensible article from the *Sanitarian* relating to the construction of healthy and comfortable stables, which will prove of interest. It has particular reference to stables constructed in cities, but the advice is pertinent under all circumstances:

There is no need whatever that a stable should be a nuisance anywhere, and when it is so, the fault is, firstly, in the building and maintenance; secondly, and chiefly—to the public—the process of removing the manure previously stored in vaults or bins, or kept in heaps in the stable.

Plank floors to stables are a common nuisance to the neighborhoods on account of the noise and stench—the wood absorbs the urine and other liquid filth and speedily becomes foul and stinking; the ground underneath becomes saturated with the leakage, and the putrefaction there set up and maintained evolves gases alike noisome and unhealthful to the horses and to all persons who breathe them.

Stables in basements—many with their ceilings on a level with and some below the street pavement—with areas for manure, insufficient light and impure air, protected by gratings, are inconsistent with public decency and healthful conditions to the people round about and to the horses kept within.

The horse is a noble, sensible and sensitive animal. He knows more and suffers more than most people think, and he should be treated with more tenderness and humanity, even independently of consideration for the health of the people. Commodiousness, cleanliness, and ventilation are primary conditions of stables for the health of horses and freedom from nuisance to persons living in the neighborhood of stables.

It has been ascertained with approximate accuracy by observation and experiment that a horse to be healthy requires eight thousand cubic feet of fresh air hourly, and that this amount cannot be supplied without dangerous draught in less than sixteen hundred cubic feet of space; and this estimate, it should be borne in mind, is based upon the spoiling of the air by respiration and cutaneous exhalation; it takes no account of uncleanly conditions, which, if present, add to the deterioration. It is generally conceded that, under ordinary circumstances, every adult man renders absolutely irrespirable five cubic feet of air hourly; and that to purify this amount and maintain the highest degree of practical purity in his immediate surroundings, not less than three thousand cubic feet of fresh air per hour is required—six hundred times the amount spoiled by respiration. Compare this and man's breathing capacity with that of the horse, and the need of stable space for horses at once becomes apparent.

But horses are even more sensitive to some foul gases, if not indeed to all, than men. For instance, to sulphuretted hydrogen—that which is evolved from the bilge water of a filthy ship—a man will stand with comparative impunity, for a considerable length of time, an atmosphere containing one part of this gas in two hundred and fifty, while half as much will quickly sicken and, if long persistent, kill a horse.

The gases evolved by the putrefaction of the excreta of horses are poisonous, like the gases evolved from the putrefaction of any other animal matter. Yet there are some persons so foolish as to assert that the odor of a stable is healthful, just as there are some dunces who think that the smell of a sewer or privy vault is of no consequence.

The urine of horses contains about six times as much putrescible matter as the dung, and is therefore six times more dangerous, and the more because it soaks into the floors, if they are permeable, and into the ground beneath. Wells in the vicinity of such stables have frequently been found so impregnated with ammonia as to smell and taste of it. Clearly, therefore, no stable should be tolerated without an impervious floor.

Such a floor, comparatively noiseless, can be constructed of asphalt or cement at little if any more cost than of wood. All stables should be carefully drained, and all liquids from them should be discharged into the sewer with as much care as the sewage from any house for human habitation. Tight vaults and bins for manure storage and long-retained heaps of manure in stables, promotive of its putrefaction, should be rigidly prohibited. Bins, if allowed at all—better that they should not be, only under restricted conditions—constructed of iron bars, as cages, so as to admit of the free exposure of the contents to the air, situated in the coldest available place, and emptied sufficiently often to anticipate putrefaction. Even heaps of manure, if allowed to lie long, are liable to ferment, and then when disturbed to give off strong ammoniacal vapors. This result of ammoniacal emanations and consequent loss of the most valuable fertilizing property of stable manure may be almost wholly averted by frequently wetting the manure with a solution of copperas or dilute sulphuric acid, with the additional advantage of increasing its commercial value. Finally, the process of handling the manure with a view to its removal should be wholly done in the stable.

Why stables should have ever been permitted to deliver manure over the pavement to wagons in the street was probably due, in the first place, to the tolerance of basement stables, with areas outside for manure storage, at a period before there was any health organization in the city, and when the number of dunces who believed in the wholesomeness of manural emanations was greater than that of intelligent and decent people; but that such stables and such practices should be tolerated now is alike disgraceful to the health authorities and the community.

◆

Mr. Suburb—My neighbor has a big dog that we are all afraid of. What do you advise?

Lawyer—Get a bigger one. Five dollars, please.

Cholly—Do you know whom I love better than all the world besides?

Nellie—Yes, sir, I do; and I can assure you that you are quite alone in your infatuation.

The Retort Courteous—Villiams—Why, my dear boy, you haven't the manners of a pig.

Jones (serenely)—No, ah! you have.

Cumso—Well, McBride, is there as much billing and cooing as there was before marriage?

McBride—The billing has increased largely.

Grocer—I am sorry, but our butter is just out.

Landlady—Well, if it's as strong as the last I got I don't see that it needs any exercise.

Did Fred enjoy his football game yesterday?

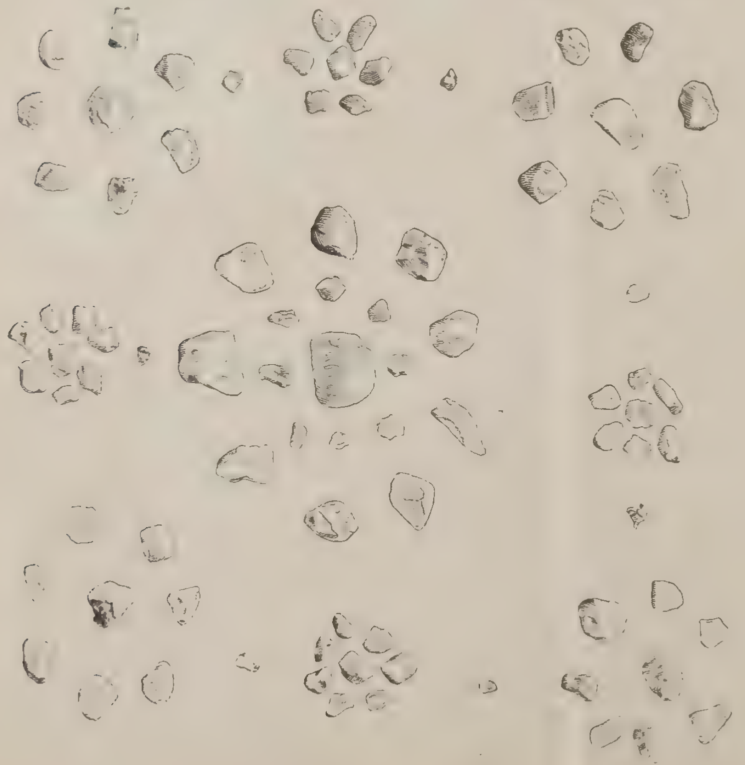
You just bet he did. This morning he can't see with one eye, and three of his ribs are broken.

Keep quiet, my friend, and don't kick, said the highwayman to the passenger. Remember that contentment is better than riches.

BUFFALO LITHIA WATER

A POWERFUL SOLVENT OF STONE IN THE BLADDER.

The following plate is from a photograph and represents the exact size and shape of Calculi passed by the Hon. T. J. Jarrett, ex-Mayor of Petersburg, Va., under the action of Buffalo Lithia Water.



The original stone shown in the cut together with one from a similar case, will be on exhibition at Ditman's Pharmacy, Astor House, Corner Broadway and Barclay Street, New York, from where water may be obtained.

Statement of Dr. John Herbert Claiborne, M. A., M. D., of Petersburg, Va., ex-President and Honorary Fellow Medical Society of Virginia.

PETERSBURG, VA., Sept. 5, 1892.

E. C. LAIRD, Buffalo Lithia Sprnigs, Va.

My Dear Doctor:—I send by this mail a box of CALCULI, passed at various times within the last year by Hon. T. J. Jarrett, our former mayor, whilst drinking the BUFFALO LITHIA WATER. They give him but little pain now when passing. I have never critically examined the broken CALCULI, passed in such quantities from Mr. Jarrett's bladder, but am under the impression that the most of them were MANESIAN PHOSPHATES. There were specimens, however, which presented the appearance of OXYLATES, and, I remember, impressed me specially as being URIC ACID. I do not pretend to account for the mode of their solution by the Buffalo Lithia Water. There is nothing in its analysis which would warrant such results, but THE RESULTS ARE THERE, and seeing is believing. I can only suppose that in Nature's alembic there has been some subtle solvent evolved, too subtle to be caught by our coarse agents, which makes this wonderful disintegration. "There are many things in heaven and earth not dreamt of in our philosophy," and his is a short creed who believes only what he can prove or explain. Faithfully yours, JOHN HERBERT CLAIBORNE.

It is well known that stone in the bladder, for the most part Gout, Rheumatic Gout, Rheumatism, and also various forms of Dyspepsia and Nervous prostration have a common origin, viz.: excess of uric acid in the blood. It is evident, then, from the foregoing statement, that this water must possess extraordinary potency alike in all of these maladies. In Bright's Disease of the kidneys it is well-nigh specific.

Water in cases of one dozen half-gallon bottles, $5.00, f. o. b. here, and for sale by all first-class druggists.

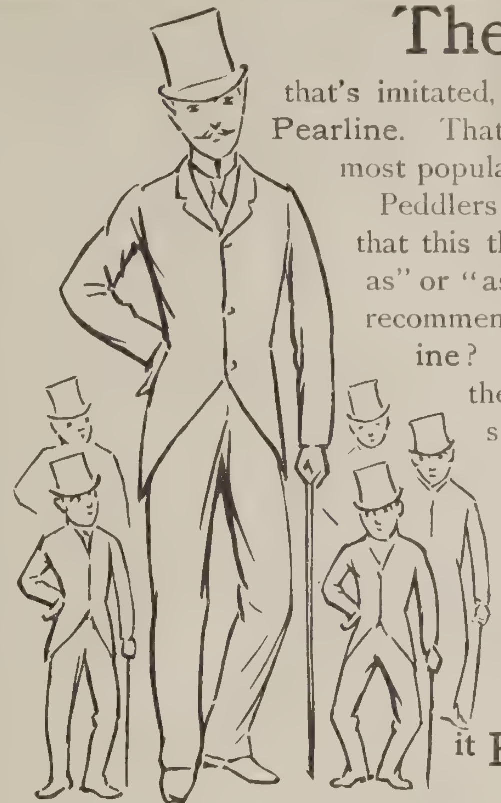
Illustrated 32-page pamphlet, giving further information, sent prepaid on application to

THOMAS F. GOODE, Proprietor,

BUFFALO LITHIA SPRINGS, VA.

THE COMING MICROBE.

There seems to be good reason for believing that the energetic measures adopted by New York for the exclusion from this country of the justly dreaded "pest of the East" have been effective, so far as the present season is concerned. So confident of this are the authorities that—though a vigilant watch is still maintained—the quarantine regulations have been relaxed, almost to the point of abandonment, for the winter at least, should no new cause for alarm minifest itself. But, is any one foolish enough to imagine that the innumerable millions of cholera bacilli—which possess an infernal tenacity of existence—will all have died by next spring in the plague-infected cities of the Old World and that fresh importations of them will not revive our peril? It is indisputable that the malady has gained a foothold in London, Liverpool, Paris, and other cities from which we import many persons and much goods—if late accounts are reliable, it has pretty well exhausted itself in Hamburg, and the measures for its suppression may have been so efficient that it perhaps will not return there with the advent of warm weather. But the other cities named may well constitute new sources of infection for us. The world's experience of the cholera is that once started it goes round the globe, westwardly, until it returns to the place whence it set forth, and it will be a new thing if man's devices do more than temporarily delay it. It may be arrested for a while, but would almost seem to be under the direction of a conscious, intelligent, obstinate malignity, which inspires it to patiently bide its time and watch for its opportunity to enter in and conquer wherever its entrance has been most vigorously contested. So, we may as well make up our minds to it, that 1893 is likely to be "a cholera year" in this country. It would not be wise for us to get ourselves into a state of horrific scare over the prospect, since that condition predisposes to the infection. But equally foolish would it be to view such probabilities with indifference, or treat them with such frivolity as has been shown in Paris, where a "cholera song" has become popular, one with the cheerful refrain, "Dance, little microbes, dance." The proper course for us to pursue is to prepare ourselves for the visitation. The health authorities lay great stress upon cleaning our cellars, back-yards and cess-pools, which is all very well, but by no means so important as cleaning and putting in good order our own personal interiors. It is a thoroughly demonstrated fact that a person in vigorous health has little to fear from the cholera. Even if he takes it—which he is likely to—the attack is mild and very rarely fatal. The primary necessity is that his digestive and assimilative organs shall be faultlessly discharging their functions, and, to enable this, his blood must be pure and rich with the nutritive and vital principles. But, how many of us are normally in that condition? Improper habits of eating, drinking and living generally have, even where there is neither hereditary taint nor special detriment by infection, clogged our life channels with impurities and rendered us liable to disease. To correct this condition, we need efficient alteratives. Ayer's Sarsaparilla is no doubt the best medicine for this purpose that we could have. It is a carefully and conscientiously compounded preparation in which are combined the most potent blood-purifying substances known in pharmacology. The best physicians are familiar with its composition and recommend it. And, on the excellent principle that "an ounce of prevention is worth a pound of cure" we will do well to fortify ourselves against the cholera by getting our systems in good condition, through a course of Ayer's Sarsaparilla, between now and spring.



The Only One

that's imitated, among all washing compounds, is Pearline. That is because it is the original, the most popular, and the best.

Peddlers and some grocers will tell you that this thing or that thing is "the same as" or "as good as" Pearline—what better recommendation do you want for Pearline? They tell you this because it pays them better to sell these "same as" stuffs. But how will it pay you to use them?

Any saving that they can offer you, in prizes or prices, can be only nominal.

The loss in ruined linens, flannels, muslins, etc., can be large.

Send it Back

Peddlers and some unscrupulous grocers will tell you "this is as good as" or "the same as" Pearline. IT'S FALSE—Pearline is never peddled, and if your grocer sends you something in place of Pearline, be honest—*send it back.* 368 J. PYLE, N.Y.

Dyspepsia

Dr. T. H. Andrews, Jefferson Medical College, Philadelphia, says of

Horsford's Acid Phosphate.

"A wonderful remedy which gave me most gratifying results in the worst forms of dyspepsia."

It reaches various forms of Dyspepsia that no other medicine seems to touch, assisting the weakened stomach, and making the process of digestion natural and easy.

Descriptive pamphlet free on application to
Rumford Chemical Works, Providence, R. I.

Beware of Substitutes and Imitations.

For sale by all Druggists.

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will confer a favor by sending us the names of any of their friends and acquaintances who, they think, would be interested, and who would appreciate

A FREE SAMPLE COPY.

Ripans Tabules cure constipation.

DYSPEPSIA FLOUR.
Also Special Diabetic Food and Barley Crystals.
UNRIVALED IN AMERICA OR EUROPE.
Circulars and Baking samples Free.
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From our Celebrated Orleans Vineyard.

Arpad Haraszthy & Co.

Producers of the
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CHAMPAGNE,
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GROWERS OF

Chateau d'Orleans, the highest grade Claret made in America.

Cabernet Blend, the richest and finest of Table Clarets.

O V Chablis, possessed of all the delicate pungency of its French counterpart.

O V Sauterne, with the exact character and *Seve* of imported Sauternes.

The **Chateau d'Orleans** and **O V Chablis** are sold in glass only.

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A SANITARIUM
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Newly erected and furnished in the latest and most approved style, for the special treatment of Cancer and Tumors.

TERMS MODERATE. SEND FOR CIRCULAR

Cleaning Brushes.—A teaspoonful of ammonia mixed with a quart of water is a good preparation for cleaning hair brushes. Dry the brush in the air after applying the mixture, but never dry in the sun.

He Knew.—Mrs. Swiggles (at the opera)—Oh isn't that a lovely violin?

Swiggles (also at the opera),—Yes, that's a Strabismus.

Judge Guffy — Guiseppe Caravalli, you are charged with assaulting and almost killing Patrick O'Flaherty.

Prisoner—Yessa, signor. He apply for worka on da Colombo statua.

Plaintiff's Attorney—I've an expert who will swear he is insane.

Defendant's Attorney—I've an expert who will swear he is of sound mind.

Plaintiff's Attorney—Then let's pair off on experts, and save that much money.

The other day a St. Paul surgeon made an incision into a woman's neck and recovered the false teeth she had swallowed.

Germany has a boarding establishment for birds, where the feathered ones are taken care of while their owners are away.

Unless an Austrian gets the consent of his wife he cannot get a passport to journey beyond the frontier of his own country.

A bird named the morepork of Australia is frequently heard vehemently demanding more pork in a clear stentorian voice.

The first carpets made in Europe were manufactured in France in 1664, in imitation of some which had been brought from Turkey.

So remote is the planet Neptune from the sun, its mean distance being 2,745,998 miles, that its temperature is estimated to be 900 degrees below zero.

A bore usually makes a big hole in a busy day.

There is no discount on the baby that comes to pa.

◆

FAT AND JOLLY.

Did you ever see a fat baby that wasn't jolly? Not much. Your perverse, peevish baby is a slab side, puny youngster. Its poor little stomach must be got into proper working so that he can digest his rations, or he will pine away and die. Make haste with your remedy, madam, and save the little one while you may. Let it be Scott's Emulsion of Cod Liver Oil with Hypophosphites of Lime and Soda, a medicine of which children become positively fond and which bestows flesh and vigor upon all who lack these indications of health. If there are croppings out of scrofula in the young, or the lungs are weak in childhood, the prompt and persistent use of this agreeable medicine will insure purity of the blood and fortify the system against consumption. Like all great medicines, Scott's Emulsion merits a continuous trial. Cures are not effected in a day or by occasional, intermittent doses. Moreover, as disease is more readily overcome at its outset than in its maturity, so the use of Emulsion should not be delayed an hour longer than is necessary to procure it. Give this grand specific a fair trial and the happiest results will ensue.

◆

A REMARKABLE NEWSPAPER ENTERPRISE.

Combination is the characteristic of this age, and when capitalists are combining in trusts, working men in labor unions, and farmers in alliances, newspapers can hardly be blamed for joining the procession. Indeed it is remarkable that the press has not led the way in taking advantage of the power of association, instead of lagging behind.

The Press Claims Company, whose advertisement appears in another column and will become familiar to our readers during the coming year, illustrates the advantages of co-operation on an extensive scale, It is a combination of hundreds of the leading newspapers of the United States for the purpose of protecting their patrons against unscrupulous Washington claim agents, and securing prompt, efficient and economical service to all persons having dealings with the government. Incidentally the company expects to make a profit for itself. It will secure patents and pensions, perfect land titles, and attend to all other legitimate business of the kind on terms that will make its employment a necessity to claimants having a proper regard for their own interests.

Membership in this company is a guarantee of the high standing of any newspaper, all applications for stock having been carefully considered and passed upon by the board of directors before allotment. The company comes before the public backed by the collective indorsement of over five hundred of the leading journals of the United States. That the American Analyst has been admitted to such an association is a compliment which our readers will appreciate as highly as ourselves. We take pleasure in recommending the Press Claims Company to all who may desire the satisfactory transaction of business in its line.

BUSINESS NOTES.

DEAFNESS CANNOT BE CURED

By local applications, as they cannot reach the diseased portion of the ear. There is only one way to cure deafness and that is by constitutional remedies. Deafness is caused by an inflamed condition of the mucous lining of the Eustachian tube. When this tube is inflamed you have rumbling sound or imperfect hearing, and when it is entirely closed, deafness is the result, and unless the inflammation can be taken out and this tube restored to its normal condition, hearing will be destroyed forever; nine cases out of ten are caused by catarrh, which is nothing but an inflamed condition of the mucous surfaces.

We will give One Hundred Dollars for any case of deafness (caused by catarrh) that cannot be cured by Hall's Catarrh Cure. Send for circulars; free.

F. J. CHENEY & CO., Toledo, O.

☞ Sold by druggists, 75c.

◆

FOR DYSPEPSIA

USE HORSFORD'S ACID PHOSPHATE.

Dr. Lorenzo Waite, Pittsfield, Mass., says: "From its use for a period of about eight weeks, to the exclusion of all other remedies, I attribute the restoration to health of a patient who was emaciated to the last degree, in consequence of nervous prostration and dyspepsia. This patient's stomach was in such an irritable condition that he could not bear either liquid or solid food. An accomplished physician of many years experience, whom I called in consultation, pronounced his case an incurable one. At this stage I decided to use Horsford's Acid Phosphate, which resulted as above mentioned."

◆

AN ENGLISH VIEW OF ONE AMERICAN INSTITUTION.

A celebrated English author recently made a short tour in the United States, and speaking of his trip from New York to Niagara Falls by "America's Greatest Railroad," he makes use of the following expressions:

"I have two ineffaceable visions before me, a river of peace, the broad waters of the Hudson; a river of tumult, the roaring cataract of Niagara.

"For about 170 miles, the New York Central runs along the margin of the Hudson, and if the eye were never lifted higher than its level, it would feast on a bouquet of colors, like a rainbow spread upon the earth."

Speaking of the dining and sleeping cars, the bath and buffet and barber shop, he says:

"With luxuries like these, the thousand miles to Chicago may become a day's holiday, and if the journey be made by the New York Central, it will be amidst some of the most exquisite spots of this vast and beautiful country.

"After the Palisades come the Highlands of the Hudson. The river itself can never be forgotten. The eye cannot escape it. It fascinates. It is majesty amidst the majestic; beauty among the beautiful. Memory cannot obliterate it.

"A word about the New York Central. It is the only line in the States having four tracks, and the only Trunk Line running into New York City. To make itself worthy of the unique position it has erected a magnificent terminus from which any part of the city may be reached in half an hour, and on rainy days without even wetting ths sole of the foot. The fastest train in the world leaves here every morning for Niagara Falls, accomplishing 440 miles in less than eight and one-half hours, or, deducting stoppages, in 425 minutes actual running time—more than a mile a minute."

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Agents make $200.00 per month and expenses Cash
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Factory Catalogue with 200 engraved designs and prices, sent free to any who want fancy iron and wire work or city, cemetery and farm fences, etc.

KINGSFORD'S OSWEGO STARCH

The Standard of Excellence.

"PURE" AND SILVER GLOSS
For the Laundry.

CORN STARCH
For the Table.

ABSOLUTELY PURE IN QUALITY.

TABASCO PEPPER SAUCE

OR LIQUID PEPPER.

IS SIMPLY THE PULP OF THE RIPE PEPPER EXTRACTED BY PRESSURE.

The seed of this Pepper was obtained from Central America, and by careful cultivation in Louisiana for many years has been so improved in strength, flavor and aroma as to have become a new variety of Red Pepper, superior to all others. The pulp is so handled as to retain all the flavor, strength, aroma and color of the ripe fruit, and to keep unimpaired in any climate. It excites the appetite, promotes digestion, and is pronounced by connoisseurs to be the finest condiment in the world. For medicinal purposes it recommends itself by its purity, strength and diffusible form.

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ENTIRELY FREE FROM THE PUNGENT TASTE OF THE ORDINARY BEERS.

It commends itself to the Consumer as a pure, wholesome and delicate Beer; can be safely used by invalids.

Specify Export Pavonia Beer, White Label, when Ordering.

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SWIFT AND COMPANY,
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RHEUMATISM AND NEURALGIA

are being constantly cured by Robinson's "Sura Cura," a positive antidote for all impure states of the blood. Price $1, sent by mail. Send for circular.

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To be GOOD NATURED.

GOLD DUST
Washing
Powder

MEANS:

The washing all done early in the forenoon.

No scrubbing; no backaches; no tattered tempers.

Monday a quiet, orderly and proper day, instead of the horror of the whole week.

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ALL GROCERS.

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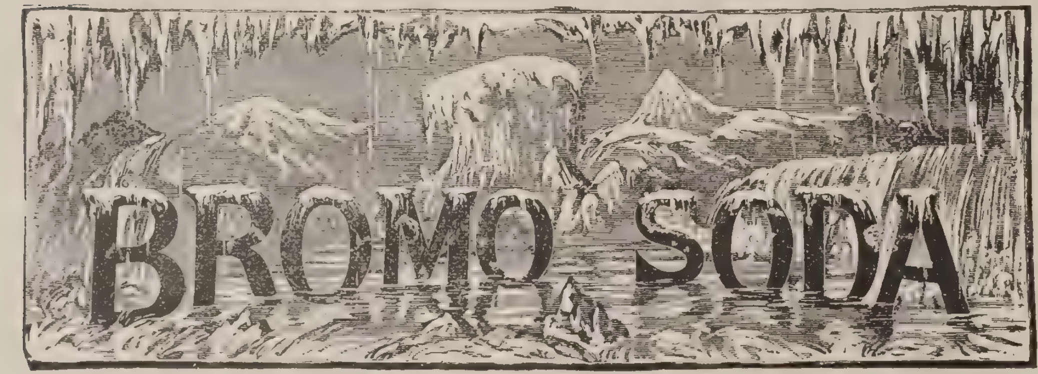
Agents Wanted. Address **DR. JUDD, Detroit, Mich.**

FOR THE SPEEDY RELIEF OF

NERVOUS HEADACHE AND BRAIN FATIGUE

WARNER & CO.'S EFFERVESCING



Useful in Nervous Headache, Sleeplessness, Excessive Study, Over Brainwork, Nervous Debility, Mania, etc.

DOSE.—A heaping teaspoonful in half a glass of water, to be repeated once after an interval of thirty minutes, if necessary. Each teaspoonful contains 30 grs. Bromide Sodium and 1 gr. Caffein.

It is claimed by some prominent specialists in nervous diseases that the Sodium Salt is more acceptable to the stomach than the Bromide Potassium. An almost certain relief is given by the administration of this Effervescing Salt. It is also used with advantage in INDIGESTION, DEPRESSION following alcoholic and other excesses, as well as NERVOUS HEADACHE. It affords speedy relief for MENTAL and PHYSICAL EXHAUSTION.

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IF you wish to advertise anything anywhere at any time write to **GEO. P. ROWELL & CO.,**
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"DON'T KNIT YOUR BROWS"

BUT BUY A

Bickford Family Knitter,

and knit everything needed in your
family, and if necessary knit
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Sold on installments.

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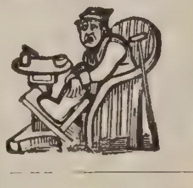
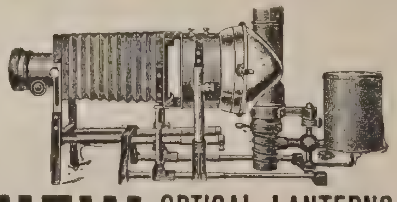


Great English Remedy for GOUT, RHEUMATISM and KIDNEY COMPLAINTS.

Sure, Prompt and Effective

Large Box, 34; Small, 14 Pills.

At all Druggists, and
224 WILLIAM ST., NEW YORK.



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No. 19 Park Place, **New York.**

DECEMBER 1, 1892.

CONTENTS.

Page
Adulteration 347
Adulteration of Beer 347
Bidoche, the Frenchman's Meat 346
Corn Pone 346
Cry in Diagnosis 350
Cure for Vegetable Poisons. 350
Cycling, Dangers of 350
Discovery of America 351
Dont's for Grammarians 350
Editorial 345
    Columbus—Danger from Plasters—Arsenic in Wall Papers.
Fined for Adulterating Coffee 348
Found in Banana Bunches 351
Household 346
Hygienic 348
Inequality of Bodily Temperature Productive of "Colds" 349
Koumiss 349
Medical 349
Miscellaneous 350
Nicknames of Noted Men 352
Typhoid and Salads 349
Will and Shall, Use of 352
Worms in Meat 348

COLUMBUS.

Under the appropriate heading, "The Columbus Idol," a deluge of newspaper gush, the *Argonaut* of October 24 very aptly says that the *Argonaut* had intended to keep its columns free from even the name, because it was believed that the tired citizen with his brains reeling with Columbus articles might turn from his daily paper to that journal and find a blessed surcease from 1492. But this was not to be. Like the AMERICAN ANALYST that journal found itself confronted by the necessities of those who needed this Columbus idol to boom the Columbian World's Fair, and silence could no longer be maintained.

If it be given to our ancient and enterprising friend, Christopher Columbus, to know what is happening up here on the earth, he must be in an uncomfortable stew about his reputation—a thing that was very dear to him when he dwelt in the flesh, almost as dear, indeed, as coin and titles. This Columbian World's Fair of ours, together with the various celebrations of the anniversaries of notable dates in his career, is certain to take the old navigator from the pedestal, whereon mendacity, ignorance and romance have held him these four hundred years, and reduce him from the society of historical statues to the rank of the real man that he was. This is inevitable, human nature being what it is, and the raucous parrots of conventionality—particularly the parrots of journalism—will be largely responsible for the arrest of Columbus and his trial and conviction at the bar of truth. The world simply will not stand the outpour of gush over the discoverer of America with which the newspapers are drenching the continent, and so causing its inhabitants madly to wish that its discoverer had never been born, and that itself had remained hidden from European ken in the Western seas. That spouting geyser of heroic drool, "Gath," the correspondent, has alone done Columbus a fatal injury by the pages on pages of mush wherewith he deluged the papers of the United States, on the occasion of the recent Columbian parade in New York. Who waded through that ocean of drivel? We also ask any sane man, who tried to do it, if he is not glad that Columbus is dead and sorry that "Gath" is alive? The revolt, thus provoked, is already making noticeable headway, and ere Chicago has bereft the last visitor to the World's Fair of his ultimate dollar, it is quite likely that universal regret will be felt that Columbus was not hanged for his crimes instead of being permitted to end his days in obscurity and peace.

In the end facts can be depended upon to hold their own against sentimental fiction, and the more that is known of Columbus the less admirable does he appear, either as a man or a discoverer. Busy men, gifted with vengeful tempers, and good brains, are exhuming brickbats of truth from the dust heap of history and heaving them with a hearty good will at the statue of the Genoese—a statue that has been foisted as a portrait upon the school children of four centuries, and which is still revered in the editorial and 'special' columns of the daily newspapers. Columbus, who, in the legend, stood an egg on end, was himself a bad one, according to the newest and most trustworthy investigators. But even Washington Irving, in the sustained panegyric which he called the "Life of Columbus," was obliged to acknowledge the hints of piracy in the early days of his hero, and all his literary skill is not able to hide the rapacity and cruelty with which the discoverer of the West Indies treated the awed and trusting natives. Columbus, as we all know, sent shiploads of them home to Spain to be sold as slaves. Guacanagari, the Cacique of Hayti, who received him as a god, cared for him in sickness, and ever stood his friend, lived to see his own people reduced to bondage, bitter toil, and hardship, and finally fled, ruined and broken-hearted, to the fastnesses of the mountains, there to perish like a starved and hunted animal. Irving glosses what he can in the conduct of the dauntless adventurer, but the glowing pages unwillingly reveal that Columbus was greedy, ruthless when interest or revenge prompted, void of honor, jealous of rivals, superstitious beyond his age, and altogether a pretty hard citizen, even for a Spaniard of the fifteenth century. In storms at sea he was forever falling upon his knees and vowing candles and silver images to the Virgin, and when on shore marching bare-footed in his shirt to shrines in fulfillment of these obligations. Despite such evidences of piety, the Roman Catholic Church, which is not squeamish, and has admitted many a queer character to the calendar, has drawn the line at Christopher, and to this day he remains uncanonized.

This is the best that his admirers can do for him in painting his likeness. Less partial writers attack not only his personal qualities, but endeavor to show that he was not so great a navigator after all—that in reality, he stumbled upon the outlying islands of the New World, much as Marshall chanced upon the first Californian gold nugget at Sutter's Fort. And the facts, we rejoice to say (in view of the intolerable downpour of contemporaneous newspaper eulogy), support this contention, which is ably set forth in part by Professor Ruge, in one of the October magazines. The AMERICAN ANALYST has in several numbers already given facts enough to instruct its readers pretty thoroughly as to the delusive nature of all this "gush." We shall be compelled to trepass upon their good nature a little more. Like a badly tasting medicine, when it has removed the cause of the illness, it will be appreciated, when we have washed away this newspaper tinsel and pretense.

It is not possible, of course now that the opening of the fair is so near, to stem the tide of grewsome gush. The Chicago show must have a tutelary deity, and Columbus has been elected. Professor Ruge charitably covers Columbus's contemptible trick of cheating a poor sailor out of a few dollars by saying that Columbus made a mistake. He certainly did—precisely the same sort of mistake that journalists with free pens, and orators with rhetorical tongues, are making at present, in consciously saying the things that are not so about this Genoese adventurer, who never let a maravedi slip by him if he could help it. We can forgive him his greed, pardon his piracy, wink at his slave dealing and blink at his rapacity and cruelty; but one thing this nation and century will not stand: Out of respect to the truth of history, and in necessary, desperate self-defense, the intelligent of all lands will protest against having Christopher Columbus imposed upon them as an aquatic George Washington.

DANGERS FROM PLASTERS.

The various plasters—adhesive, strengthening, corn, court, poor man's, porous, or whatever the name may be—which are promiscuously sold in the stores, kept on hand in many households, and carried about by many, the contamination in the pocket, or in the drawer or cupboard of the *omnium gatherum* that serves as the family medicine-chest, may be a ready source of septic infection, when the plaster is transferred directly to an abraded or bleeding surface. Moreover, no one knows where or of what materials these plasters are made, or through what hands they have passed. There is in the commercial articles used no pretense, and certainly no fact, of ascepticity. All sorts of animal refuse are doubtless made use of in their manufacture—old animal skins, horns, hoofs, parings, etc.—and how filthy the process of concoction and preparation may have been, no one is of course capable of saying. Physicians should caution their druggists and patients against the use of the commercial varieties of adhesive plaster, unless there is a proper guaranty and certainty of the article having been properly prepared, kept free of septic contamination, the raw surface of the wound properly cleansed, and so forth.

Perhaps quite as important a caution would be that as to the common filthy habit of wetting the "court plaster" with saliva before its application. Cases, we believe, are on record of infection by this means; and it can be readily seen that any species of autoinfection or heteroïnfection may thus be easily brought about. Only sterilized, freshly boiled, or sublimated water should be used.

Our attention has been attracted to this subject from the fact that in a recent number of *The Lancet*, Dr. Myrtle traces a case of angeioleucitis and death to infection of micro-organisms derived from the adhesive surface of a bunion plaster.

ARSENIC IN WALL PAPERS.

There can be no doubt that many cases have occurred where poisonous effects have been produced by wall papers which are printed with colors containing arsenic. Just as serious injury has been done by rugs, carpets, curtains and furniture coverings similarly dyed. More dangerous still are paper boxes made of arsenical paper, to contain eatables or candies, and yet more so are toys for children painted with arsenical paint.

Another and real danger from such wall papers, however, exists when there are several of them on the wall. Oftentimes, in repapering a house, new paper is put on over old paper, and not infrequently this is done four or five times. An old paper hanger here in the city, while recently at work in a house, removed five thicknesses of paper from one of the rooms, and recognized the inside paper as one he had put on thirty-five years ago. If each of these five papers had contained arsenic, even in quite small quantities, the chances are that the inmates would have suffered from it. To put new paper over old paper, even if both are absolutely harmless, is a senseless proceeding, besides being dangerous in more ways than one. Legislation has been asked to prevent the sale of arsenical wall papers; let those who seek it urge at the same time that a law be passed making papering over old paper a misdemeanor. If they are successful only in securing this law governing paper hangers, there will be little, if any, need of one prohibiting the sale of papers which contain arsenic.

HOUSEHOLD.

"BIDOCHE."

THE FRENCHMAN'S MEAT.

In France the poor have a kind of meat—in some cases it is their only kind—which they call "bidoche." The word is not in the dictionaries, because it is of too recent coinage to be entitled to a place there. It has come into use with the things which it describes, and that is the flesh of horses, donkeys and mules which have been lamed or are, while not diseased, beyond useful service as draught animals, so are fattened and butchered, says the *Liverpool Meat Trades Journal.*

Many horses which are good for little else are good for "beef" purposes, and only such as are fit to be eaten, and are not too old, are allowed by the watchful sanitary authorities to be butchered and sold as meat. On account of its cheapness, the butchering of "bidoche" has greatly increased in the past few years. In 1891 more than 21,000 horses, besides 300 donkeys and sixty mules were butchered for their meat in Paris. Horse-meat is permitted to be sold only by those who deal in it exclusively, so that no purchaser of beef in a general market is in danger of having horse-meat imposed upon him. The horse-meat dealers employ men to go about and purchase horses suitable for their purpose. There are within the limits of Paris two abattoirs where horses are slaughtered for food—at Villejuif and Pantin.

At Villejuif at least fifty horses are butchered every day. The business of slaughtering them is much more terrible, it is said, than that of slaughtering cattle, on account of their greater intelligence and excitability. The horses seem to have a premonition of their fate from the moment of their entrance into the building. Nevertheless the actual slaughter is effected in the most merciful and instantaneous manner possible. The animals which are thin and poor in flesh, but otherwise in suitable bodily condition, are used in the manufacture of sausages. Only the better conditioned furnish the roasts and steaks, which are a real luxury to the poor, and even an occasional delicacy to the rich. Many superb cart horses, and even driving animals of great value, find their way to the horse abattoir as the result of accidents. In a fall a fine horse's leg may be broken. It is very likely rendered useless by this accident. A special wagon, or truck, employed only for this purpose, is sent for, and the animal is hurried away to Villejuif, there to be turned into "bidoche." The omnibus and tram car companies furnish many recruits for the "bidoche" army. The practice of butchering horses for food undoubtedly has the effect of saving many animals from long periods of maltreatment. Where horses are not used for food, men have a motive to make use of them, for some draught purpose, as long as they can move or pull a few pounds; and one often sees in England an old horse which has once been a pet carriage animal dragging out its last days cruelly between the shafts of a cab or dray. In Paris, on the contrary, as an ageing horse is worth more for "beef" or even for sausages than for draft purposes, it goes to a sudden and practically painless death rather than to this long living slaughter. So careful is the inspection of horses offered for use as beef, that, it is said, the consumer of horse meat has a more complete assurance of its proper condition than has the consumer of beef or mutton.

Dressing for Patent Leather.—Oil of sweet almonds is recommended by leather-workers for the purpose. It keeps the leather soft and glossy and prevents it from cracking.

What Is It That Pulls a Person Down?—It is not natural and reasonable intellectual work that injures the brain, but emotional excitement. Most men can stand the severest thought and study of which their brains are capable and be none the worse for it, for neither thought nor study interferes with the recuperative influence of sleep. It is ambition, anxiety and disappointment, the hopes and fears, the loves and hates of our lives that wear out our nervous system and endanger the balance of the brain. A man can spend more of his strength in five minutes of unnatural mental excitement than in a day of calm, steady brain work.

CORN PONE.

The following rhyming recipe for corn pone is from the pen of Bishop Williams, of Connecticut, senior prelate of the Episcopal church in the United States:—

"Take a cup of cornmeal,
(And the meal should be yellow),
Add a cup of wheat flour
For to make the corn mellow;
Of sugar a cup, white or brown at your pleasure,
(The color is nothing, the fruit is the measure);

"And now comes a troublesome thing to indite,
For the rhyme and the reason they trouble me quite;
For after the sugar, the flour, and the meal
Comes a cup of sour cream, but unless you should steal
From your neighbors I fear you will never be able
This item to put upon your cook's table;
For 'sure and indeed,' in all towns I remember,
Sour cream is as scarce as June buds in December.

"So here an alternative nicely contrived
Is suggested your mind to relieve,
And showing how you without stealing at all
The ground that is lost may retrieve.
Instead of sour cream take one cup of milk,
'Sweet milk!' what a sweet phrase to utter?
And to make it cream-like put into the cup
Just three tablespoonfuls of butter.

"Cream of tartar, one teaspoonful, rules dietetic—
How nearly I wrote it down tartar emetic!—
But no; cream of tartar it is without doubt,
And so the alternative makes itself out.
Of soda the half of a teaspoonful add,
Or else your poor corn cake will go to the bad;
Two eggs must be broken without being beat,
Then of salt a teaspoonful your work will complete.
Twenty minutes of baking are needful to bring
To the point of perfection this 'awful good thing.'

"To eat the best this remarkable cake
You should fish all day long on the royal-named lake.
With the bright waters glancing in glorious light
And beauties unnumbered bewild'ring your sight.
On mountain and lake, in water and sky,
And then, when the shadows fall down from on high,
Seek 'Sabbath Day Point' as light fades away
And with this feast the angler's long day,
Then, there will you find, without any question,
That an appetite honest awaits on digestion."

Other Indian Corn Cakes—The following letter appeared in the New York *Times*: "The *Times* is giving insertion to the recipes for the making of 'corn cake,' prompted by the famous poetical formula of the honored Presiding Bishop of the American Episcopal Church. Perhaps something in reference to the possibilities involved in Indian cormeal as a bread stuff, from a woman of Virginia, which State may be said to be peculiarly the home of corn bread, may be considered. In the first place, the kind and quality of meal to be employed is of an importance that cannot be ignored if a really appetizing and wholesome bread be the aim of the housewife. Begging pardon both of Bishop Williams and of 'Yankee Cook,' a Virginian would insist that the meal must be of white corn, and not of the yellow variety of the cereal ground into a bread stuff for the Northern and Western markets. And the best of the white stuff grown by the Southern farmer is that devoted to the making of the meal for table use. Some householders at the South are so particular in regard to their cormeal for the making of bread that they carefully select the corn for the purpose, culling from the crib, ear by ear, only ears with the hard, pearly, flint-like grains which, when ground, become meal as white as the flour of wheat and scarcely less light and powdery than wheat flour. Moreover, to attain the desired result, the meal, after having been passed through the grist mill, is subjected to the bolting process, after the method of finishing wheat flour, so that it is relieved in a great measure of the husk or chaff which covers the grain, this proving a hindrance to successful bread-making, and being insoluble in the stomach. Furthermore, before using, the Southern housewife runs her meal through a fine sieve, so that there remain only the farinaceous and digestible components of the grain to enter the bread. In this condition the meal, when fresh, is glutinous, and may be pressed into a lump that will show the lines of the hand almost as plainly as will a lump of hand-pressed wheat flour. This pressure is considered a test of freshly-ground and pure meal. The yellow cornmeal of our markets, subjected to heat in the preparation, is invariably dry and sandy in consistency, the heat also developing an acrid and unpalatable flavor. The Virginia recipe for making the corncake is after this wise. For a family of six persons, to four well-beaten, fresh eggs add one pint of buttermilk, or unskimmed clabber (otherwise known as loppered milk or the natural sour curd), in which are dissolved one teaspoonful of soda, as much sifted cornmeal as will make a batter that will sour easily, and a scant tablespoonful of lard [Vegetarians will, of course, substitute butter or oil] heated to the boiling point, a sufficiency of salt having been thrown into the meal before mixing, it being remembered that salt is an essential in all corn breads; beat quickly, but thoroughly, taking care that all lumps are mashed —pour into a well greased, shallow pan, and bake in a quick oven from twenty to thirty minutes, or until the crust is of a rich, dark brown; turn out from the pan and serve hot, cutting in squares or wedges as the shape of the pan may suggest; split and butter. Or this cake may be baked in small patty pans. It is eaten at breakfast. What is called 'johnny cake'—the corn cake which is baked on a board in front of an open fire—is unknown at the South, even with the prevalence of open fires and old-fashioned Dutch ovens. The Virginia "hoe cake" is one of the simplest preparations for the Southern table. With the meal salted and well sifted in an oblong wooden tray or bowl, the dough is mixed with cold water, with the hands or with an iron spoon, and then spread over a griddle (or hoe), hot enough to brown, but not enough to char the meal, with which it must be plentifully dusted, about three-fourths of an inch thick. When a tenacious and well-browned crust forms on the under side, a spatula is slipped under, and the cake, deftly turned, is baked brown on the other side. This is the characteristic corn bread of the Virginia dinner, common among all grades of people. Another dinner bread of the South is the corn pone. It is mixed with cold water, as is the hoe cake, but becomes more sightly by being moulded by the cook in a thick oblong oval loaf. It is baked slowly in a pan in a stove, or in a Dutch oven, with red-hot coals both under and on the lid, and most cooks divide their dough into several smaller pones. It is interesting to note that the word pone, or paune, which was derived from the North American Indians, and is another term for loaf, is used only in connection with bread made of Indian cornmeal, and only at the South. We never here of pone as describing a kind of bread made of wheat flour, barley, rye, or oatmeal, or of any other grain than corn, and nowhere do we hear it used except in Virginia, and by descendants of Virginians in other States. A favorite bread for the mid-morning luncheon, taken in the summer by Southern families, who have dinner at the inconvenient hour of three o'clock in the afternoon, is what is known as 'risen cornbread.' This is made up the evening previous with hot water. The dough undergoes a process of gentle fermentation, and when baked is slightly sweet to the taste. It generally appears in small oval pones, and these, split while hot, buttered, and eaten with fresh buttermilk cooled on ice, made a delicate and wholesome repast. A popular but homely bread for the evening meal in Virginia is what is called 'scratch back,' from the roughness of its surface. It is of white cornmeal, made up with milk and eggs and a little melted lard [substitute oil or butter] into dough which is moderately stiff, and is dropped from a large iron spoon to fall as it may in a well-heated and meal-dusted pan, thrust into an oven, and baked brown. To be enjoyable 'scratch back' must be split, buttered, and eaten while steaming hot, as chilling or cooling impairs the richness of their flavor. A buttered 'scratch back,' with a cup of milk, is frequently the Southern schoolboy's supper. Cornmeal griddle cakes, or 'flapjacks,' made up with milk and eggs, are esteemed a delicacy by invalids at the South, and taken with tea by convalescents, are regarded as safe and nutritious. These are some of the many cakes made of cornmeal in Virginia. It will be observed that in none of them is sugar used. There are cornmeal puddings served with sweet sauces, but no Southern cook would risk the spoiling of her corn breads by sweetening them."

WATERPROOFING FOOTWEAR.—*Le Moniteur de la Cordonnerie* publishes a note on a new method of waterproofing, which is cheap and effective, and which possesses, besides, the great advantage of not hardening the leather. Into a bottle with benzine put as much finely-minced white paraffin wax as it will dissolve. This solution is then applied to boot-tops by means of a soft brush until the leather is thoroughly saturated. This is soon done, for the benzine quickly evaporates, and leaves the wax in the pores of the leather. Be careful to smear well the seams, especially between the upper and sole. When once the benzine has evaporated, there remains no smell, and the leather is soft, for the wax is itself flexible and elastic. Patent leather boots, even, may be proofed by this means, without damage to the varnish, if it is rubbed after drying with a soft rag. Of one thing, however, care must be taken, as benzine is highly inflammable, do not use it when near a candle, lamp, fire, etc., for fear of an explosion.

HOW TO CHOOSE ORANGES.—The expert orange buyer does not select the smooth, clean-skinned fruit invariably, nor does he object to a heavy percentage of rough, dirty skins. The latter are not always easy to sell, but they invariably give the greatest satisfaction. This is because in the case of oranges, as with almost any fruit, beauty is only skin deep, and the insects which infest orange groves and extract sweetness from the fruit much as bees draw honey from the finest flowers, only attack the sweetest and choicest to be found. The effect of their efforts is to roughen the skin by perforating it, and hence dust is retained, instead of either falling or being brushed off the untouched skins. The fruit within the latter having been rejected by the insects on account of a lack of sweetness is not so palatable as that in the rougher-looking skins; and it is decidedly a good plan to follow in the footsteps of the busy little creatures who can tap an orange and ascertain how sweet it is in a manner no man could attempt.

HAND GRENADES.—Hand grenades for extinguishing fires are made by filling thin spherical glass bottles with a solution of calcium chloride, sal-ammoniac or borax.

The smallest quadruped in the world is the pigmy mouse of Siberia.

New York has 8,162 dwellings which contain over ten families each.

ADULTERATION OF BEER.

PICROTOXIN.

BY S. F. HUGHES, PH. G.

[A paper read at the meeting of the American Pharmaceutical Association.]

Beer is a popular drink in this country, and its consumption is incredibly large. There are extensive breweries throughout the country, and large fortunes have been realized from the sale of beer. Malt liquors have an established fame for their food value, in virtue of the diastase of malt.

A large percentage of our fellowmen, especially the inhabitants of our cities, are not in good health, principally owing to the wear and tear of our mode of living. An innocent aid to nature is sometimes a daily necessity, and hence the assistance of such a ferment as diastase is often a positive benefit. The question of the health of the individual is necessarily an important one, and involves the perpetuity of society. Investigation has demonstrated that one of the chief causes which intend to impair health and shorten life is the adulteration of food and drink.

The general use of beer in this city has called the attention of the writer to this popular drink, and induced him to make an analysis of some samples, to the end that any picrotoxin might be detected.

It is well-known that adulterations are often practiced in the manufacture of beer, for the purpose of imparting a heading and frothing, or giving it a bitter taste. Alum, Chloride of Sodium and gentian root are used for the latter; Capsicum, Grains of Paradise, Ginger and Coriander are also added to give pungency and flavor, also Cocculus Indicus, Quassia, Tobacco leaves, Yarrow, Stramonium seed, Calamus, Coloring, Copperas, Aloes and Black Pepper, are also substances more or less used for the adulteration of beer. For the purpose of giving age to new beer, or make it taste as if eighteen months old, some sulphuric acid is added. (*On Fermented Liquors*, by Lewis Feuchtwanger, N. Y.)

It is ascertained that whenever beer is a national beverage and enters largely into daily consumption, its adulteration has been undertaken. It is only a few years ago that the world was alarmed by the announcement of an eminent French chemist, M. Payen, that strychnine was prepared in large quantities in Paris, to be employed in the manufacture of the celebrated bitter beer of England. This was a very sensational discovery, when it is remembered that strychnine is remarkable for its highly poisonous nature.

The English government took notice of the adulterations, and numerous acts of Parliament have been passed against them; but notwithstanding this the illicit work has gone on, and cannot easily be entirely prevented. An authority on brewing liquors has stated a variety of articles used in the adulterations. Among these the most deleterious and injurious is picrotoxin, which is the active and poisonous principle of Cocculus Indicus, and is used as a substitute for malt and hops; it imparts a bitter taste and has an inebriating effect.

Picrotoxin is a principle prepared from the seeds of Anamirta paniculata, Nat. Order Menispermaceæ, Formula $C_{15}H_{16}O_6$. It is a powerful poison; a dose of from five to ten grains will kill a dog, and a tincture of the berries, applied to a child's scalp, has been known to cause death. It is often used because it is detected with great difficulty.

As it is a grave truth that the habitual use of impure beer must consequently undermine the constitution, and thus make the merry beer drinker a *felo de se*, and the subject thus becoming so vitally important to our fellowmen, I have carried on with unabated interest my analysis of beer, and the result has been the definite discovery of the poisonous picrotoxin in the beer. The beer we drink is supposed to be a fermented saccharine infusion, to which has been added some wholesome bitter principle. It would alarm the beer drinker to be informed that his beer has been impregnated with an active poisonous principle.

I do not say that the brewer puts into the beer the picrotoxin, but he uses an extract of hops which contains the poisonous principle, picrotoxin, to give to the beer its bitter taste and exhilarating effect, and these remarks apply to the sample which I have analyzed.

My analysis was conducted in the following manner: I first evaporated in a water bath two bottles of the suspected beer until nearly solid; this was mixed with a pint of distilled water, to which was added 1 oz. of animal charcoal, and allowed to stand several hours. This was then heated to 100 deg. F., and filtered; it was of a dark wine color. To this was added some basic acetate of lead, which precipitated gum and coloring matter. It was allowed to stand twenty-four hours and filtered through animal charcoal.

To the filtrate I added some amylic alcohol (about 1 oz.), and allowed it to stand twenty-four hours, frequently shaking. The alcohol was separated from the aqueous solution treated as above with amylic alcohol; the two lots were then mixed and evaporated on a sand bath in a porcelain capsule.

The residue was re-dissolved in 50 per cent alcohol, evaporated to dryness, recovered by a little distilled water, acidulated with H_2SO_4, boiled to expel any volatile matter, some animal charcoal added to eliminate all extractive matter, and lastly filtered.

I noticed a bitter taste in the clear liquid; this was evaporated and treated with two ounces strong ether

The ethereal liquid was separated and evaporated and picrotoxin collected on the sides of the capsule, it being very small, but a sample of which I have produced.

I believe that we should have a statute law passed which would strike at this evil of adulteration of beer.

A large portion of our cosmopolitan community drink beer, and they should be protected against its poisonous adulteration.

The sale of picrotoxin for use in beer manufacture should be prohibited, and the safeguard adopted for the drinkers in other countries should be copied here. While the apparatus for good beer is by no means perfect at this date, yet the frothy and spicy article can be made palatable without being made poisonous.

In this connection I would say that I believe more attention should be paid to the manufacture of pure beer.

Scientific men have given scarcely any attention to the question, which they perhaps consider unworthy of their study. This I consider a palpable error, and it is likewise erroneous to disregard what we may describe as the vulgar necessities of the world.

As votaries of science the duty is imposed upon us to investigate, to the best of our knowledge, the topics which come home to the bosoms of men. It is our part to descend from the ethereal heights of our empire, and bring our knowledge to bear on the arcana of industrial art. It has been justly said that he is a man of science and nothing more, who knows only how to make science useful to himself.

The social question is one of the foremost with which we occupy ourselves at the present day; and the sanitary condition of the people is the gravest of all social questions, for it vitally affects the interests, the well-being, and the existence of the men who compose the State.

To prove the soundness of these suggestions, I will say that the subject has engaged the notice of eminent men in Europe.

The famous benefactor of mankind, Pasteur, aware of the poisonous adulterations of malt liquors, has endeavored to make this vice unnecessary by adding to his other fruitful inventions a new process for improving the manufacture of beer, for which he has received letters patent.

A wealthy Danish gentlemen has already set aside one million Danish crowns (about $280,000) for the support of a laboratory in which to carry on scientific research in malt liquors.

The first report of work done in this laboratory has been issued, and it shows that elaborate researches are carried on to establish a scientific basis for the great industries of malting and brewing, and to secure the people against the employment of injurious adulterations.

It should be recorded that the founder of this laboratory, from which so much scientific interest and technical value has been derived, is Mr. J. C. Jacobson, a Danish gentleman who owns a large brewery in the neighborhood of Copenhagen.

We fear that it will be near the Golden Age of the millennium before the brewers of this country will open laboratories to expose or extirpate the deleterious ingredients of these malt productions.

We are fortunate to have with us such public-spirited citizens as the founder of the New University at Palo Alto, and we believe that his patriotism and intense love of science will lead him to act on the suggestion, such as we have here made, and thus bring his practical benefactions directly to the homes of the people.

In conclusion I will say that I have refrained from stating the label of the producer, as I have been actuated by the pure motive of scientific research, and do not wish to impair the strength of my statements by any inferential or direct imputations against any particular producer.

If the effect of this article will be to attract public notice to the facts which I have stated, and thus bring about an improvement in the properties of a popular and common drink, it will have answered the honest purpose of the writer.—*Pacific Drug Review.*

FINED FOR ADULTERATING COFFEE.

John K. McIntyre, a leading wholesale grocer of Dayton, O., was arrested by Fred B. McNeal, State Dairy and Food Commissioner, on a warrant charging him with selling adulterated coffee. The brand complained about is known as the "Sunrise" brand, and according to the food commissioner's analysis contains 25 per cent of coffee. The remainder is alleged to be a compound of chickory and peas. The arrest caused quite a sensation in business circles. McIntyre is a millionaire grocer. He claimed that no deception had been practiced and that the buyer and consumer necessarily knew that the article is an adulteration. The sale of goods occurred in June last.

THE LARGEST DIAMOND.—Teacher (in mineralogy class)—Johnnie, give me the name of the largest known diamond?

Johnnie—The ace.—*Jewelers' Weekly.*

What is your chief objection to Wagner's operas?

Why, they turn down the lights so that you can't see anything but the stage.

HYGIENIC.

WORMS IN MEAT.

THE LOCAL GOVERNMENT INSPECTOR DESCRIBES THEIR DETECTION.

In a large well-lighted room in the Dold pork packing establishment at East Buffalo ten young women work with microscope and slide from 9 o'clock in the morning till 4 o'clock in the afternoon of each working day in the year. They are assistants to Dr. Francis T. Metcalfe, government meat inspector, and are engaged in examining for trichinæ slices of flesh taken from swine. Theirs is a comparatively new vocation in Buffalo, and of this work Dr. Metcalfe spoke recently as follows:

Of late years the Government has carried on an inspection of all meats killed for export. This is necessary because of the trade treaties with France and Germany which provide that all meats sent to those countries shall bear the American Government's guarantee that it is wholesome. The inspection is carried on under the general supervision of Dr. Michener, chief of the Bureau of Animal Industry, one of the bureaus of the Department of Agriculture.

The Bureau of Animal Industry was established for the improvement of all kinds of stock and for the examination of meat. The Buffalo station is No. 42, and as it was established but two months ago I think that there are only that number in operation now. They are scattered over the United States, at points where hogs are killed for export, and are maintained by the Government. In the case of the local branch of the Bureau Mr. Dold applied to the Government to furnish facilities for a Federal inspection of his meat and his request was granted. We have a room in his packing house and as yet inspect his meat only. In Chicago the inspectors examine meat from several different slaughter houses and this system might be inaugurated in Buffalo. As yet I do not know officially that any other pork packers have asked to have their meat examined, although there is a rumor that one man has. If he can convince the head of the Bureau that he ships large quantities of pork to France and Germany he will probably be furnished facilities for such inspection. Our work is done in a very thorough manner and it would be difficult for any meat infected with trichinæ to be sent abroad. When a hog is killed three slices of flesh are taken from the carcass; one from the pillar of the diphragm, one from the tenderloin, and one from the shoulder. These pieces of meat are put in a tin box and numbered, a corresponding number being placed on the carcass from which they were taken. Both sample and carcass are then put in cold storage till the following day. The next morning the samples taken from the hogs killed the preceding day are sent to the inspectors. There each slice of meat is examined by two girls and an entry made on the record book opposite to the number of the carcass as to its condition. If the samples are found to be affected with trichinæ the carcass is sent to the fertilizer works, and if in a healthy condition it is cured for market. Dold has a slaughter-house in Kansas City. The meat is examined there, shipped here in refrigerator cars, cured and restamped by the local inspectors. The stamps used are not unlike those placed on cigar boxes, and an accurate report is submitted by Dr. Metcalfe periodically to the Department at Washington on all work done and all stamps received and issued.

Beeves, calves and sheep also undergo a Government inspection before and after being killed. Each quarter of beef on passing inspection receives a lead seal, and each satisfactory carcass of sheep and calves is similarly marked. It is a misdemeanor to counterfeit these tags or attach them to uninspected meat. The trouble for which this class of stock is examined are anthrax or lump-jaw, tuberculosis, and blood poisoning. Many times unhealthy formations are found in cattle which do not affect the appearance of the flesh to any great extent and yet render it unfit for food.

In such cases Dr. Somerville, the inspector, exercises vigilant care in seeing that the carcass is sent to the fertilizer works and not to the markets.

The field for inspection is large, and though Dr. Metcalfe has seen much diseased meat in the staughter-houses here he does not think he ever saw any of it pass the inspectors as fit for use.

INEQUALITY OF BODILY TEMPERATURE THE CAUSE OF TAKING COLD.

PROF. E. H. RANDLE, BYHALIA, MISS.

It has long been known that exposure to a current of air is likely to cause one to take cold. If we enlarge upon this and say that one part of the body's being warmer or cooler than another part is the chief cause of taking cold, we will better express our opinion.

By a cold, we will include all the forms of what is commonly meant by a "bad cold," whether of the head, throat, lungs, or other part. We will not discuss the differences in the kinds of cold, nor attempt any critical definition of them. All kinds yield most generally to the same treatment and are results of like causes.

To make a test case it is best to take a sensitive subject. We will therefore take a person already afflicted with cold, for it requires but a trifle for him to take more cold. Such a one begins to cough or sneeze, or give some signs of increasing cold whenever subjected to any conditions in which one part of his body becomes warmer or cooler than the other parts. If he is in a current of air, one side becomes cooler than the other and he takes more cold. If he takes a ride on a hot summer day, one side becomes warmer than the other and the same result follows. If he increases or decreases the clothing—especially underwear—of only one portion of the body, that part will lose its equilibrium of heat and cause more cold. This is, perhaps, the reason that "bad colds" are more prevalent in spring and fall, on account of so much injudicious and unequal changing of clothes. The flannel shirt should never be donned or doffed without the flannel drawers being treated in the same way. If the patient take a position near a hot stove, or fire, he will soon give evidence of increasing cold; if he "bake" his feet the same effect will result. In such a case, if one will turn round frequently, stand up, walk the floor, and scarcely be still, he will decrease his cold. If overcoats and overpants would always go together, they would not cause half the number of colds that the overcoats alone do. "Keep warm feet and a cold head," is a wise saying; not because it is correct, but because we usually keep a hot head and cold feet. A nearly equal temperature with feet slightly cooler than the head on account of habit, is, perhaps, the best. Thin shoes and socks the year round, and often plunged into the snow and slush and mud, and allowed to dry on the feet, are frequently causes of cold, and show that the feet are the hardiest members of the body. The evil of a feather bed in summer time, is that it keeps the under side of a person much warmer than the upper side. A feather bed should never be used when less than two quilts are required.

Any cold can be cured in one or two days by preserving well the equality of bodily temperature. This is a difficult task out of doors. Keep comfortably warm and no warmer. Toddies and all stimulants I have usually found to be injurious because they heat the head more than they do other parts of the body; and the head, especially when it is affected with cold, is already too warm. In such cases the head should be bathed in cold water. To get in bed and cover all parts of the body comfortably, is doubtless the quickest means of disposing of any cold. There are few colds that cannot be cured in this way within thirty-six hours; for the covering is the same from head to foot. When dressed, some parts of a person are much more barely clad than others.

I will give one instance out of many: Recently a good minister of the gospel said to me that his little daughter coughed every night enough to keep her and the whole family awake till a late hour. I suggested to him that if she were properly covered, in bed was the place to cure a cold or prevent coughing; that if he would see that she was just comfortably covered with her hands and arms under the cover, and it well tucked around her shoulders and up to her ears so as to prevent currents of air from passing up and down her neck and body as she would breathe, that I did not think she would cough at all. He tried it the following night, and was much surprised to find that she did not cough at all that night, and in a few days was well of her cough.

I have so thoroughly tested the thoughts and conclusions here presented, during the past six years, that I now have them published with no doubt of their correctness.—*Memphis Medical Monthly.*

TYPHOID AND SALADS.

BEWARE OF UNWASHED LETTUCE AND CELERY.

At a time when the profession is interested in discovering every channel through which the poison of enteric fever may be communicated, I should like to call attention to a mode of contagion which has generally escaped notice. We all know the peril of drinking water which has been in the slightest degree contaminated by sewage, but do we realize the danger of eating salads which during their growth have been irrigated by the market gardener with liquid manure? I chanced two years ago to observe a gardener bearing a long-spouted can in his hand, from which he poured two or three ounces of a brown evil-smelling fluid upon or round a row of young lettuce plants. Inquiring the source of this fluid I was informed that it came from a neighboring cesspool. Being a constant eater of salads, this incident caused me to meditate, and also to make further investigation from other gardeners as to the culture and bringing up of salad plants, and I discovered that it is usual for fluid composts to be thus used, wherever they can be obtained, to encourage the growth of lettuce, endive, celery, and similar vegetables. In the course of this frequent affusion with sewage it must happen that portions of the fluid fall upon the plant itself and percolate between its leaves. The watery portion will be absorbed or will evaporate, meanwhile the closed circles of flattened stems and leaves of a celery or lettuce plant form a trap or filter which will hold and retain all solid particles such as the bacilli and other solid contagion of enteric fever, if any be present.

The gardener, of course, never thinks of inquiring into the source of his liquid manure; it is no part of his business to consider whether enteric fever has existed in any adjacent cottage which drains into his cesspool or manure pond. Thus it may happen that the householder who has guarded his water supply and his drainage from all possibility of enteric contagion, has lettuce or celery plants brought into his house which carry disease and death hidden within their delicate white leafage. Whether he and his family are poisoned or not may now depend upon the washing the vegetable receives. It is not easy to cleanse celery and lettuce in such a manner as to remove all solid particles, if such exist, from the closed gathered leaves about the heart of the plant; moreover, not one cook in fifty knows the importance of thorough washing. Since discovering the above facts, I rarely eat any salad which is not grown in my own garden, and dressed by a cook who knows the perils of imperfect washing, but I always contemplate other salads with interest, and I have repeatedly discovered in them minute scraps of decaying organic matter, apparently derived from the market gardener's liquid manure can.

One meets occasionally with cases of enteric fever the origin of which is difficult to ascertain. I must confess I have never yet been able to prove contagion from this source, but the difficulty of such proof is overwhelming—to trace back the lettuce a patient consumed a fortnight ago to its birthplace in some French or English country garden, and to ascertain whether typhoid existed in the vicinity, passes the wit of man. I have, however, had grave reason to suspect such an origin in certain cases where every other cause seemed excluded—it is evidently possible. I should like to know if any of your readers agree with me in the opinion I have expressed, and, if so, I feel strongly that the public ought to be warned of the danger.—*British Medical Journal.*

MEDICAL.

KOUMISS.

Papers upon this subject have from time to time appeared in the *Journal*, but it is curious to note how careful most of the authors have been to evade giving detailed particulars regarding the difficulties that have to be surmounted in the manufacture of aerated milk preparations.

The original Koumiss is the Russian, made from mare's milk, which is used for the obvious reason that it is less rich in casein and fatty matter than cow's milk, and, therefore, far more easy of digestion.

Mare's milk contains approximately 1.70 per per cent of casein, and 1.40 per cent of fatty matter, whereas cow's milk contains 4.55 of casein and 3.70 of fatty matter.

I think I am correct in stating that cow's milk is universally used in this country, and it answers the purpose admirably in most instances, but a better preparation is obtained by diluting with water to reduce the percentage of casein, etc.

Mare's milk contains 8.75 of milk sugar, cow's milk only 5.35; it is, therefore, necessary to add some of this to our preparation. The following formula answers very well. Take of

Fresh milk,	ounces xij
Water,	ounces iv
Brown sugar,	drachms iiss
Compressed yeast,	grains xxiv
Milk sugar,	drachms iij

Dissolve the milk sugar in the water, add to the milk, rub the yeast and brown sugar down in a mortar with a little of the mixture, then strain into the other portion. Strong bottles are very essential, champagne bottles being frequently used, and the cork should fit very tightly; in fact it is almost necessary to use a bottling machine for the purpose, and once the cork is properly fixed it should be wired down. Many failures have resulted because the corks did not fit properly, the result being that the carbonic acid gas escaped as formed and left a worthless preparation. It is further necessary to keep the preparation at a moderate temperature, and to insure the article being properly finished the bottles are to be gently shaken each day for about ten minutes to prevent the clotting of the casein. It is as well to take the precaution of rolling a cloth around the bottle during the shaking process, as the amount of gas generated is great, and should the bottle be of thin glass or contain a flaw, it may give way. Some few days elapse before the fermentation passes into the acid stage, and when this has taken place the preparation is much thicker. It is now in the proper condition for allaying sickness, being retained by the stomach when almost everything else is rejected.

Malted Koumiss can be made as follows:

Extract of malt,	ounces iss
Compressed yeast,	grains xx
Brown sugar,	grains x
Milk, to champagne pint.	

Euonymised Koumiss is a suitable preparation for use in some cases of derangement of the liver in which food is rejected and an hepatic stimulant is required, combined with a slight sedative. To prepare this add fluid extract of euonymin, 3 drachms, to every 16 ounces of the diluted milk, then proceed as with ordinary koumiss.

Coca Koumiss could be made by the addition of cocaine hydrochlor. to the milk, and would be specially adaptable in cancer of the stomach.

Aerated whey, which is a very refreshing drink in cases of fever, and much used in some parts of Germany, could also be manufactured on the same principle as koumiss.

Peptonized Koumiss.—The easiest way of getting a satisfactory preparation is by the adoption of the following formula:

Papaine,	grains vi
Milk, to champagne pint,	
Compressed yeast,	grains xx
Brown sugar,	drachms iij

This does not keep very long.

Meat and Malt Koumiss would constitute a serviceable preparation in consumption.

Chemists dealing in these preparations should impress upon the minds of their customers the necessity of keeping the bottles in a cool place, and the advisability of using either champagne or soda-water taps so that the bulk of the gas may not escape with the first draught.—*Pharmaceutical Journal and Transactions.*

THE CRY IN DIAGNOSIS.

The cry of children, according to Dr. E. C. Hill (*Denver Medical Times*), in pneumonia and capillary bronchitis is moderate and peevish and muffled, as if a door were shut between child and hearer. The cry of croup is hoarse, brassy and metallic with a crowning inspiration. That of cerebral disease, particularly hydrocephalus, is short, sharp, shrill and solitary. Marasmus and tubercular peritonitis are manifested by moaning and wailing. Obstinate, passionate, and long continued crying tells of earache, thirst, hunger, original meanness, or the pricking of a pin. The pleucitic is louder and shriller than pneumonic, and is evoked by moving the child, or on coughing. The cry of intestinal ailments is often accompanied by wriggling and writhing before defecation. Exhaustion is manifested with a whine. Crying only, or just after coughing, indicates pain caused by the act. The return or inspiratory part of the cry grows weaker toward the fatal end of all diseases, and the absence of crying during disease is often of graver import than its presence, showing complete exhaustion and loss of power. Loud screaming sometimes tells of renal gravel.—*Medical Brief.*

DANGERS OF CYCLING.

Ragonseau (*La France Militaire*) says that excessive wheel-riding is attended with numerous unfavorable results. Among those most frequently observed by him are an affection of the ankle-joint and laryngitis. After a somewhat prolonged ride, especially if it be a rapid one, the cyclist experiences dryness and burning in the larynx, soon followed by coughing and mucous expectoration, often streaked with blood.

The author deems this catarrhal condition due to the bent posture which is unfavorable for respiration and to mouth-breathing, which becomes necessary as nasal breathing grows inadequate for the augmented respiration necessary for the increased consumption of air required by the increased employment of force. In consequence of the rapid motion large quantities of air enter the larynx and lungs with a proportionate increase of pressure. Expirations are correspondingly increased. All these conditions combine in the production of the above trouble, which yields only to discontinuance of its cause.—*Cond. Extracts.*

CURE FOR VEGETABLE POISONING.

Some careful experiments have been made by eminent pathologists on poison by the sumac, the result indicating an almost perfect identity in the result with the disease known as erysipelas, and it is suggested, therefore, that the same remedy may be used for rhus poison as for the trouble in erysipelas. A lather of common potash soap, made strong, and applied with a shaving brush on the affected parts, is a well known and effectual remedy. Those liable to be poisoned by this plant will do well to remember this.

For Warts—It has been recommended to use a drop of castor oil on each wart twice a day, rubbing it in as well as possible. This has cured in a number of cases. Another is:

Salicylic acid,		
Alcohol	*aa*	1 dram
Collodion		4 drams

Paint the warts twice daily with this preparation and they drop off in five or six days. This is also an excellent corn cure, applied as for warts.

An ointment of pyrogallic acid is highly recommended, composed of:

Pyrogallic acid	100 grains
Landin	380 grains

Mix. Apply two or three times a day. Another:

Corrosive sublimate	2 grains
Collodion	1 dram

Mix. Apply once daily.

The Best Germicide.—A chemist in M. Pasteur's laboratory in Paris, is said to have made the discovery that no living disease germ can resist more than a few hours the antiseptic power of essence of cinnamon. He looks upon it as not less effective in destroying microbes than corrosive sublimate. Even its scent kills them and it does no harm to human beings.

Water on the Brain.—Hydrocephalus is a condition known as "water on the brain." It occurs as an acute trouble, but the chronic form peculiar to infants is the one with which the laity are familiar. If the brain wastes away a dropsical fluid fills the space left; or if, at birth, the brain is smaller than it ought to be, there is a dropsical effusion outside of it which expands the skull. In some cases this expansion is so great that the life of the child must be sacrificed at birth. But, as a rule, the hydrocephalic child is born alive, and the head rapidly increases in size. In some instances, the progress of this affection has been arrested, and the victims have lived to adult life, and even to old age. But these cases are rare, and death usually occurs in early infancy.

Children May Get a Disease by Imitation.—Parents should keep in mind the fact that twitching of the eyelids, of the mouth, and other involuntary movements of the muscles, as in St. Vitus' dance, may easily be acquired by imitation. It is therefore dangerous for children to associate with the victims of any such infirmities of the nervous system.

Hot Water.—Hot water is lauded as one of the best gargles in suppurative tonsilitis—relieving pain, congestion and swelling, and hastening the time when its contents may be evacuated.

Imagination.—If it be true that the physicians have plenty to do attending to imaginary ailments, it is also true that the sick have plenty to pay for imaginary cures.

Naphthaline as a New Tapeworm Remedy.—According to the observations of Mirovitch (*Mercredi Medical*), naphthaline is a powerful teniacide, being superior to other anthelmintics both in the certainty of its action and in the absence of any toxic effect For children the author employs the following formula:

R.	Naphthaline	4½ to 7 grains.
	Castor oil	½ ounce
	Essence of bergamot	2 drops

MISCELLANEOUS.

DON'TS FOR GRAMMARIANS.

Do not say "He speaks bad grammar," but "He uses poor English."

Not "I am real ill," but "I am really ill."

Not "I feel bad," but "I feel badly."

Not "Hadn't ought," but "Shouldn't have."

Do not begin all remarks with an exclamation such as "Well!" "Say!" "Oh!"

Do not say "I'm going, I don't believe," but "I'm not going, I don't believe."

Not a "free pass," but a "pass;" not "new beginners," but "beginners;" not "elevated up," but "elevated."

Not "I am through dinner," but "I have finished dinner."

Not "It is too salty," but "It is too salt."

Not "It is tasty," but "It is tasteful."

Not "light complected," but "light complexioned."

Not "He don't come to see me," but "He doesn't come to see me."

Not "Who are you going with?" but "Whom are you going with?"

Not incorrectly "She wrote to Nell and I," when you say correctly "She wrote to me."—*City and Country.*

Switzerland is erecting what is reported to be its first sugar factory.

THE DISCOVERY OF AMERICA.

IS IT CORRECTLY CREDITED TO COLUMBUS?

[Continued.]

It is not our purpose to trace out the history of colonization in America. Enough has been said to show that it is to the northern line of route first discovered by the Northmen of Iceland and Greenland, and recovered in the fifteenth century by John and Sebastian Cabot (who on their first voyage may probably have taken the old route by way of Iceland, as Hudson did at a later date)—it is to this route and to those who followed it that we must refer the settlement of the United States of to-day. French, Dutch, and Swedes, as well as English, all used this route; but the English became at last the dominant race in the country; and it was men of English birth, or English descent, who, in 1776, took into their own hands the government of their own country.

Quite different has been the part played by Spain in the New World. Without entering into the history of the atrocities committed in other parts of America, we here confine ourselves to denying that Spain took any considerable or useful share in the founding of the United States. A settlement in Florida, which was ceded to England in exchange for Havana, in 1753, the latter place having been captured during the war, and a line of missions and other settlements along the Pacific coast—these were the chief claims that could be made by Spain to anything like a share in the honor of having helped to found or form the present nation. And these amount to virtually nothing. The honor is due, not to the proud and selfish Spanish grandees—so ably drawn by Kingsley in his immortal "Westward Ho"—but rather to the Cabots, to the Drakes, Greenvilles, and Raleighs, who braved the power of Spain and defeated her hugest armadas, thereby arresting, in its full career and in the height of its power, a double tyranny of Church and State, which, had it been allowed to hold its course unchecked, would infallibly have strangled, in its earliest infancy, the civilization and freedom of which America now so loudly boasts. When the mines and treasure-houses of Aztecs and Incas had been exhausted; when the last Indian had succumbed to the white man's fetters or the white man's faith, what would have been the condition of the country under a purely Spanish rule? The national conditions and resources at present realized in the United States would not have been in existence. So far from being due to the triumphs of Columbus and of Spain, they signalize the defeat of both. The degree of civilization at present existing in Central and Southern America is due almost entirely to the same progressive forces working indirectly through the medium of the United States and other advanced powers, not to any virtue of their mother country. It is through the Northern route across the Atlantic that the North American continent has received the means and the power to show such evidences of culture and civilization as will be set forth at Chicago in 1893, and their collection and exhibition may well serve as a fitting reminder to all mankind that Spain, at all events, did not either find or found the nation.

From Miss Marie A. Brown's Plea before the Select Committee of the United States Senate on the Centennial of the Constitution and the Discovery of America, for recognition of the discovery of America by Leif Erikson, A. D. 1000, we quote: "This American republic is contemplating an act of the gravest import, the celebration of the greatest achievement in its history, the discovery of this continent. Just at the very moment the achievement is ascribed to a certain man, and fixed at a certain date, historical facts declare that the man in question was not the discoverer of this country, that the date is five hundred years too late, and that the honor *must*—if the nation values its integrity or acknowledges fealty to the truth—*the honor must be given to the predecessor*, to the *discoverer*, and not to his follower, or imitator, the man who *profited* by his discovery. I stand before you, gentlemen, as the spokesman of this historical fact, knowing that this fact cannot but be respected by this nation and duly observed in its every act. When I enunciate this historical fact, it is not my voice alone that does it; it is the united voice of the nations of the Scandinavian North; it is the united voice of the Scandinavians of the United States, who, were this fact recognized by the nation they have adopted, would at once be transformed from aliens into compatriots, sharing our pride in a common ancestry; it is the united voice of Great Britain, Germany, France; it is the voice of all the learned societies of Europe; it is the voice of Iceland, uttered through her archives, through the proud consciousness of every man and woman born to that island for nearly a thousand years, through the many volumes of ancient Icelandic manuscripts preserved in the libraries of Copenhagen, Stockholm and Christiania; through the tomes upon tomes of ecclesiastical records, the annals of the administrations of the Church of Rome in Greenland for six centuries, and in Vinland for probably a correspondingly long period, that lie buried in the libraries of the Eternal City.

"Father Bodfish of the cathedral in Boston, in his paper read a year ago before the Bostonian Society on the discovery of America by the Northmen, is reported to have quoted as corroborative authority the account given in standard history of the Catholic Church of the establishment of a bishopric in Greenland in 1112 A. D. and he added the interesting suggestion that, as it is the duty of a bishop so placed at a distance to report from time to time to the Pope, not only on ecclesiastical matters, but of the geography of the country and character of the people, it is probable that Columbus had the benefit of the knowledge possessed at Rome thus derived. It is (he said) stated in different biographies of Columbus that, when the voyage was proposed by him, he found difficulty in getting Spanish sailors to go with him in so doubtful an undertaking. After Columbus returned from a visit to Rome with information there obtained, these sailors, or enough of them, appeared to have had their doubts or fears removed, and no difficulty in enlistment was experienced."

In the archives of Iceland are found authentic records which testify that Columbus arrived from England in a Bristol merchant-ship and landed in the harbor of Hvalfjardareyri, in the southern part of Iceland, in February of the year 1477. This harbor used at that time to be frequently visited by foreign traders, especially from England and Ireland. Columbus himself says that in the before named year the sea that washes round the island (which nearly approaches England in size) was quite free from ice. Voyages to Iceland at this time of the year are not altogether unusual, but the entire absence of snow is very rare. But it is corroborated by the public records of Iceland that this actually occured in the months of February and March in the year 1477. In this way a remarkable coincidence occurred.

"At that time one of the most prominent personages among the clergy of Iceland was the Benedictine Magnus son of Egalf, who in the year 1470 was nominated abbot of the monastery of Helgafell. Helgafell might, in respect to the earliest voyages of discovery of Icelanders to America, be called classic ground, for out of this very neighborhood had set forth the first discoverers and colonists of Greenland and other parts of America.

"In the year 1475 Magnus, abbot of the Benedictine monastery of Helgafell, was consecrated Bishop of Skalholt by Archbishop Gauto, of Drontheim. In the winter of the year 1477 it now happened that Bishop Magnus visited the churches of his diocese on the peninsula of Hvalfjardareyri at the very time when Christopher Columbus landed in the haven of the same name. The bishop met with Columbus, and they conversed in the Latin language. Columbus inquired concerning the western lands (as Rafu, in the preface to the 'Antiquitates Americanae' p. xxxiv., note 1, says to him, inquiring concerning western lands.")

[To be continued.]

FOUND IN BANANA BUNCHES.

Workmen for wholesale banana dealers never begin work that they do not take their lives in their hands.

Scarcely a wagon load of the fruit is taken from a ship that some sort of deadly poisonous reptile, spider or insect is not hidden away beneath the layers.

The animal life which takes free passage from foreign countries by storing itself away in bunches of bananas would furnish food for an interesting volume on natural history.

So accustomed have the handlers of this fruit become to seeing big, hairy tarantulas crawl out of the bunches and up the legs of their trousers that they whisk them to the floor and step upon them with no more concern than if they were harmless croton bugs or caterpillars instead of the venomous insects that they are. The bite of a South American tarantula is in all cases poisonous, and in many instances deadly, yet their presence among banana-handlers creates no more terror than if they were the most harmless of spiders.

They are more frequently found in bananas than any other reptiles, and they come from every place from which bananas are shipped. They are black and fuzzy, with long, hairy legs and little bead-like eyes, which twinkle and snap like electric sparks, and their very appearance would strike terror to the hearts of those who are not accustomed to seeing them. As a rule, the bodies of these big spiders are about the size of the end of a man's thumb, but sometimes a "Gulliver" crawls out into daylight, and he is immediately captured and caged, and the captor easily sells him for $1 or $2.

Those of the tarantulas which are not aroused by the jolting of the bunches in handling and keep in hiding, are stowed away in the hot cellars of the dealers, where they become warmed up and then crawl out and spend the remainder of their days in the cracks of the ripening-rooms, with the domestic rats and other small animals with which these cellars abound.

Snakes are not infrequently found coiled around the stock of a bunch of bananas, and they are seldom killed. As a rule the variety is peculiar, and a ready market is always found, where they can be disposed of at a reasonable price.

Among some of the other foreigners which migrate to this country through the medium of the banana are a species of crab, big cockroaches, beautiful butterflies, innumerable varieties of sea shells, rats, mice, etc.

Among the most feared of the reptiles is the black snake with a brown tinge near its under part. It usually measures about eighteen inches in length. Its head is rather flatter than is usual with snakes, and just back of its head for about two inches it is marked with small yellow stripes, which look something like a gold collar. These snakes are generally found in the consignment of bananas from Baracoa, although occasionally they are discovered in shipments from Jamaica and Costa Rica.

The most frequent visitor to our shores in the snake kingdom, on banana vessels, is what the workmen call diamond snakes. There is nothing in their appearance to indicate the origin of the name. In length they are about two feet. The head is flat and sharp, and those who profess to have knowledge on the subject say that its bite is poisonous, though not necessarily fatal.

Scorpions of the real zodiac order are also among these unwelcome banana stowaways, and while their stings are not considered actually dangerous they are usually extremely painful, and workmen when they are stung by them generally stop work for a few hours and reduce the swelling which follows and allay the pain at the most convenient liquor saloon.

Centipedes are not uncommon among cargoes of bananas. They are not of the domestic order commonly known as "ear-wigs" either. They are long, fat fellows with two rows of saffron colored legs and brilliant purple bodies, and their stings are feared more than small-pox by the handlers of bananas

It is said that these creatures are so poisonous that when they walk upon the bare flesh their legs leave a red trail upon the skin as if a pin had scratched it. It is also said that with such lightning-like quickness do they sink the ends of their numerous legs into whatever they are crawling upon when they become alarmed, that it is impossible to knock them off. Should the legs penetrate a person's flesh, so the men who unload ships will tell you, death is inevitable, and when the poison is injected the flesh mortifies almost immediately.

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NICKNAMES OF NOTED MEN.

"The Silent Man"—U. S. Grant.
"The Poet of Nature"—William C. Bryant.
"Old Rough and Ready"—Zachary Taylor.
"The Railsplitter"—Abraham Lincoln.
"Silver-tongued Orator"—Wendell Phillips.
"Grand Old Man"—William E. Gladstone.
"Little Phil"—Philip Sheridan.
"Father of Greenbacks"—Salmon P. Chase.
"The Little Giant"—Stephen A. Douglas.
"Old Hickory"—Andrew Jackson.
"Black Dan"—Daniel Webster.
"Old Man Eloquent"—John Quincy Adams.
"Goldsmith of America"—Washington Irving.
"Mad Yankee"—Elisha Kane.
"Schoolmaster of Our Republic"—Noah Webster.
"Wizard of the North"—Sir Walter Scott.
"Black Jack"—John A. Logan.
"The Honest Man"—James Monroe.
"Poor Richard"—Benjamin Franklin
"Bachelor President"—James Buchanan.—*Detroit Free Press.*

◆

THE USE OF "WILL" AND "SHALL."

There is probably no more confusing part of the English language than that which regulates the proper use of "shall" and "will." The reply of James Russell Lowell to the woman who wrote saying, "I would be very much obliged for your autograph," has been often in print, and has undoubtedly been clipped for scrap and pocket-book reference by many persons. The poet essayist granted her request in the following fashion: "Pray, do not say hereafter, 'I would be obliged.' If you would be obliged, be obliged, and be done with it. Say, 'I should be obliged,' and oblige, yours truly, James Russell Lowell."

An additional hint to go with this "cut me out" is that of the old verse:

In the first person simply shall foretells;
In will a threat or else a promise dwells;
Shall in the second or the third doth threat;
Will simply then foretells the future feat.

Or "shall" in the first and "will" in the second or third persons are to be regarded as simple declarations, and both in all other cases convey a threat.—*New York Times.*

◆

INCONSIDERATE—"I wonder what would become of you if I were to die."

"Now that's so inconsiderate of you. Why couldn't you have entertained such ideas as that when I was younger and better-looking, if you chose to entertain them at all?" protested his wife.—*Indianapolis Journal.*

◆

A JOY FOREVER.—"Ward is engaged to Mamie Eccles."

"Why, he has only known her a week."

"True. But he invited her to go to the theatre last evening, and she didn't keep him waiting."—*N. Y. Life.*

◆

A GLASS-EYE PUN.—"It's been puzzling my brain," inadvertently remarked Snodgrass.

"What has?" asked Snively.

"Whether a man with a glass eye ever has a pane in it."—*Jewelers' Circular.*

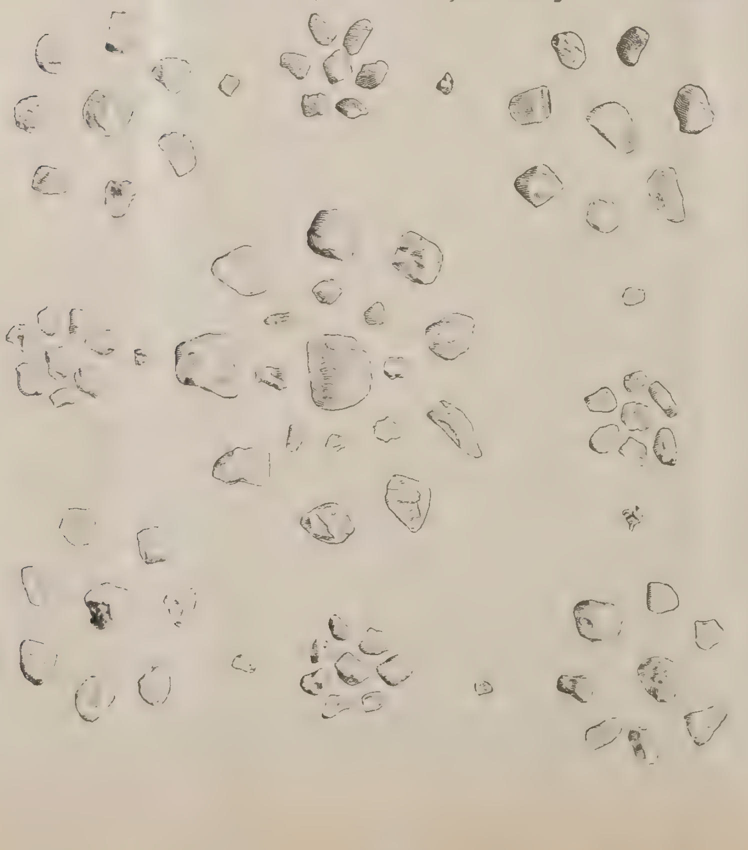
◆

Ah, my son, when are you going to settle down? Remember that a rolling stone gathers no moss. No, but it gets a tremendous polish.

BUFFALO LITHIA WATER

A POWERFUL SOLVENT OF STONE IN THE BLADDER.

The following plate is from a photograph and represents the exact size and shape of Calculi passed by the Hon. T. J. Jarrett, ex-Mayor of Petersburg, Va., under the action of Buffalo Lithia Water.



The original stone shown in the cut together with one from a similar case, will be on exhibition at Ditman's Pharmacy, Astor House, Corner Broadway and Barclay Street, New York, from where water may be obtained.

Statement of Dr. John Herbert Claiborne, M. A., M. D., of Petersburg, Va., ex-President and Honorary Fellow Medical Society of Virginia.

PETERSBURG, VA., Sept. 5, 1892.

E. C. LAIRD, Buffalo Lithia Sprnigs, Va.

My Dear Doctor:—I send by this mail a box of CALCULI, passed at various times within the last year by Hon. T. J. Jarrett, our former mayor, whilst drinking the BUFFALO LITHIA WATER. They give him but lttle pain now when passing. I have never critically examined the broken CALCULI, passed in such quantities from Mr. Jarrett's bladder, but am under the impression that the most of them were MANESIAN PHOSPHATES. There were specimens, however, which presented the appearance of OXYLATES, and, I remember, impressed me specially as being URIC ACID. I do not pretend to account for the mode of their solution by the Buffalo Lithia Water. There is nothing in its analysis which would warrant such results, but THE RESULTS ARE THERE, and seeing is believing. I can only suppose that in Nature's alembic there has been some subtle solvent evolved, too subtle to be caught by our coarse agents, which makes this wonderful disintegration. "There are many things in heaven and earth not dreamt of in our philosophy," and his is a short creed who believes only what he can prove or explain. Faithfully yours, JOHN HERBERT CLAIBORNE.

It is well known that stone in the bladder, for the most part Gout, Rheumatic Gout, Rheumatism, and also various forms of Dyspepsia and Nervous prostration have a common origin, viz.: excess of uric acid in the blood. It is evident, then, from the foregoing statement, that this water must possess extraordinary potency alike in all of these maladies. In Bright's Disease of the kidneys it is well-nigh specific.

Water in cases of one dozen half-gallon bottles, $5.00, f. o. b. here, and for sale by all first-class druggists.

Illustrated 32-page pamphlet, giving further information, sent prepaid on application to

THOMAS F. GOODE, Proprietor,

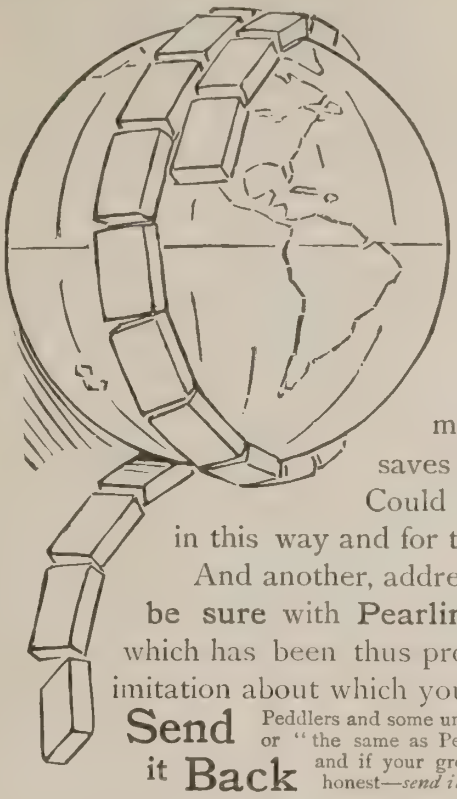
BUFFALO LITHIA SPRINGS, VA.

SEASONABLE FOOD.

The winter, though long delayed by an exceptionally late and delightful autumn, is at last upon us, and those of us who like the good things of the table, find compensation for the biting blasts and multitudinous discomforts of the season in the tempting array of appetizing viands now loading the market stalls. But, unhappily, the universal law that temptations are most likely to be to our injury, applies here as everywhere else. We have been all summer and autumn, if we were wise, feeding largely upon vegetables and fresh fruits and have got our digestive organs habituated to dealing nicely with them. Can we now, with impunity, plunge into the consumption of such heavy and gross foods as the early winter lavishly offers and our tastes incline us to without danger of derangement of the functions of those organs and consequently of our general health? Decidedly not.

Turkeys have become abundant. How long, it seems to us, we have wanted turkey! So we stuff one with chestnuts—perhaps we have even gone to the length of preliminarily feeding him on English walnuts until his fat is all yellow—we roast him and, vehemently suspecting there never was another turkey quite so good, eat altogether too much of him, far more than is good for us. And the next day we feel stuffed and stupid, suffer from indigestion, and the whites of our eyes get as yellow as his fat was, if we don't take care of ourselves. Or perhaps it is the roast sucking-pig which tempts us, as it well might anybody, and to give a temporary joy to our palates we load our stomachs with material that literally "stays by us." And, speaking of pig, sausages are in—"genuine country sausages" made on the next block—and the man who, rising on a cold morning and sniffing the aroma of sausages frying for breakfast, does not hungrily hasten to get at them, has in him the makings of a first-class ascetic.

Well, all these things, and many more which might be cited, while good in moderation and safe for more unrestrained indulgence later in the season, should be very sparingly partaken of now. Radical alterations in diet must not be made with suddenness or Nature will rebel against the violence done to her. Health is the natural condition of life, and when we succeed in supplanting it by disease, we do so by violation of some of the plain and simple laws of being, first and foremost among which is the prohibition of too much food, unusual food, and food that is difficult of digestion and assimilation. At each change of the seasons we are but too apt to suffer from thoughtless infractions of that law and while the ill effects may be only temporary, it is also quite within the limits of probability that they may lead to the most serious consequences. It is therefore wise to employ promptly such remedial agents as will quickly, effectually and without possibility of injury by them, relieve nature and restore healthful conditions. A simple purgative, however violent in its action, will not do this. Its action is merely mechanical and it does not at all affect the liver and kidneys. Yet the vast majority of remedies for constipation and indigestion offered to the public are purgatives, and nothing more. The best, beyond all question, established in popular regard by the experience of nearly half a century, is Ayer's Compound Cathartic Pills. They meet every requirement in the most admirably perfect manner, do not conduce to a constipated habit, which is the general fault of other professedly cathartic pills, and are wonderful aids to digestion. For "after dinner" use, they far excel all others.



Enough Pearline has been sold to put a girdle of it round about the earth, and a good deal over. Hundreds of millions of packages, in the last fifteen years, have made washing easy for millions of different women. This suggests a question—to the timid women who think that because **Pearline** saves so much work it must do some harm. Could **Pearline** have been sold and used in this way and for this time, if it were dangerous? And another, addressed to **all** women: Isn't it better **to be sure** with **Pearline,** the original washing compound, which has been thus proved, rather than to risk it with some imitation about which you know nothing?

Send it Back — Peddlers and some unscrupulous grocers will tell you "this is as good as" or "the same as Pearline." IT'S FALSE—Pearline is never peddled, and if your grocer sends you something in place of Pearline, be honest—*send it back.* 375 JAMES PYLE, New York.

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Dr. T. H. Andrews, Jefferson Medical College, Philadelphia, says of

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"A wonderful remedy which gave me most gratifying results in the worst forms of dyspepsia."

It reaches various forms of Dyspepsia that no other medicine seems to touch, assisting the weakened stomach, and making the process of digestion natural and easy.

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TERMS MODERATE. *SEND FOR CIRCULAR*

"TABASCO PEPPER SAUCE."

During the last few years many references have been made in the New York newspapers to the merits of "Tabasco" sauce, but there nevertheless remains plenty of room for still further education as to its capabilities. Mr. E. McIlhenny of New Iberia, La., visited New York in the interest of "Tabasco pepper sauce" with which his name has been so conspicuously identified for more than twenty-five years past, and which sauce is now extensively used pretty much all over the civilized world. To this day no other manufacturer has ever been able to produce an article to compare with his. One or two drops are sufficient for a gravy, a plate of soup, meat or oysters. It is superior in flavor to and cheaper than any similar preparation, one bottle being equal to a dozen of the ordinary kind. A thorough epicure does not think his meal complete without this sauce. It is used in all the principal hotels, clubs and restaurants in both the Old World and the New. Mr. McIlhenny also puts up Tabasco ground pepper and Tabasco dried pepper, two entirely new articles upon the market, the latter especially commends itself for its delicacy of flavor and strength. Most pepper is hot enough, but what pepper has really a fine flavor? It is the thing most to be desired in a spice, and is the great characteristic of this pepper. Mr. McIlhenny's pepper vinegar is somewhat better known and has made for itself warm friends.

BOOK NOTICES.

WORTHINGTON COMPANY, 747 Broadway, New York, announce for immediate publication as No. 31 in their International Library, BEYOND ATONEMENT. By Marie von Ebner-Eschenbach. Translated by Mary A. Robinson. Illustrated with photogravures. 1 vol. 12 mo., cloth, $1.25; paper, 75c.

A work of commanding interest, written by one of the most brilliant women of our age. While a most delightful novel with a plot that is really unique it exhibits the writer's fine sense of humor and clever dramatic powers. Combined with a vigor of thought it expresses at times a delicacy of wit that is truly startling. In every respect it is a story of great beauty in which breadth and vigor of treatment are harmoniously blended with exquisite delicacy of detail.

BUSINESS NOTES.

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LUCAS COUNTY, }

FRANK J. CHENEY makes oath that he is the senior partner of the firm of H. C. CHENEY & CO., doing business in the City of Toledo, County and State aforesaid, and that said firm will pay the sum of ONE HUNDRED DOLLARS for each and every case of CATARRH that cannot be cured by the use of HALL'S CATARRH CURE.

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The new locomotive which now draws the Empire State Express on the New York Central—No. 903—is the most powerful locomotive engine in the world. It is two-fifths larger than the average railway locomotive. This immense "iron horse" weighs 100 tons, while the weight of the average engine is 60 tons, and it is 1,020 horse power, while the ordinary locomotive has from eight to nine hundred. It is believed by the company that the larger wheels of No. 903 will reduce the Empire State's time on the trip to Albany to two hours and fifteen minutes, from two hours and forty-five minutes, a saving of half an hour. —*Hotel Register, New York.*

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The seed of this Pepper was obtained from Central America, and by careful cultivation in Louisiana for many years has been so improved in strength, flavor and aroma as to have become a new variety of Red Pepper, superior to all others. The pulp is so handled as to retain all the flavor, strength, aroma and color of the ripe fruit, and to keep unimpaired in any climate. It excites the appetite, promotes digestion, and is pronounced by connoisseurs to be the finest condiment in the world. For medicinal purposes it recommends itself by its purity, strength and diffusible form.

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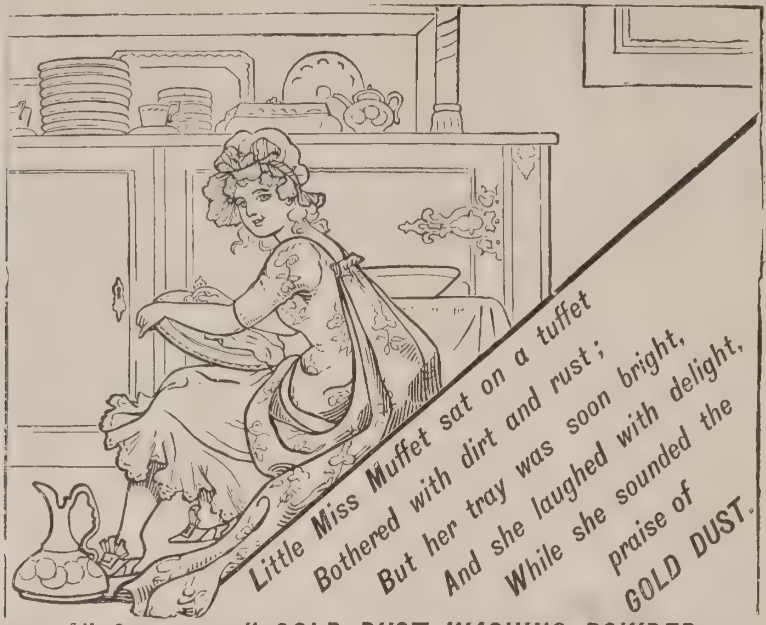
Little Miss Muffet sat on a tuffet
Bothered with dirt and rust;
But her tray was soon bright,
And she laughed with delight,
While she sounded the
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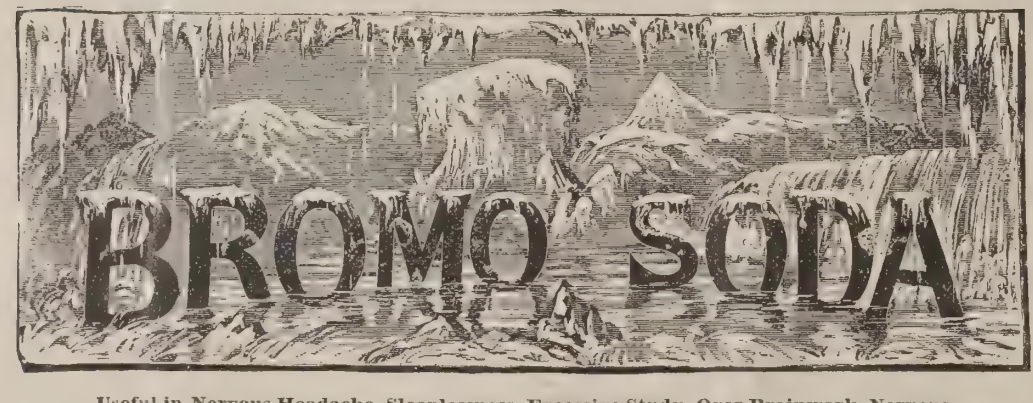

Useful in Nervous Headache, Sleeplessness, Excessive Study, Over Brainwork, Nervous Debility, Mania, etc.

DOSE.—A heaping teaspoonful in half a glass of water, to be repeated once after an interval of thirty minutes, if necessary. Each teaspoonful contains 30 grs. Bromide Sodium and 1 gr. Caffein.

It is claimed by some prominent specialists in nervous diseases that the Sodium Salt is more acceptable to the stomach than the Bromide Potassium. An almost certain relief is given by the administration of this Effervescing Salt. It is also used with advantage in INDIGESTION, DEPRESSION following alcoholic and other excesses, as well as NERVOUS HEADACHE. It affords speedy relief for MENTAL and PHYSICAL EXHAUSTION.

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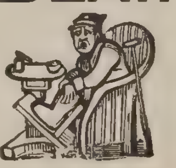

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Large Box, 34; Small, 14 Pills.

At all Druggists, and
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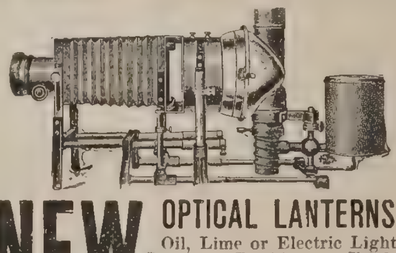

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DECEMBER 15, 1892.

CONTENTS.

Page
Adulteration 361
Antikamnia 360
Botanical Freaks IV
Bran Eating 359
Cottonseed Oil 358
Discovery of America 362
Editorial 357
End of Volume Eight—Co-operation in Housekeeping.
Electric Trolley Wires IV
Grease Eradicator 358
Household 358
Hygienic 359
Licorice 361
Medical 360
Microbe of Malaria 360
Miscellaneous IV
Moving Obelisks IV
New Soluble Cocoa 361
Oat Meal 359
Old and New IV
Plasmodium Malariæ 360
Position in Sleep 360
Vaccination Against Snake Poison 360
Vegetable Digestive Ferment 360

END OF VOLUME EIGHT.

The present issue closes the Eighth Volume of the AMERICAN ANALYST. It would be superfluous to rehearse the wide and varied discussions in which its activities have been engaged throughout that period, for they are known across the breadth of the continent, and are "familiar in men's mouths as household words." And the fruits our efforts have borne are well known, too, being recognizable in the perceptible weakening hold that sophistication now has upon our manufactured foods and beverages—a tendency that is emphasized by the collapse of the numerous notorious frauds in those departments which we have exposed and brought to public condemnation. Abuses of that kind are steadily diminishing, but their extirpation is yet far from being completed, and that special mission of the AMERICAN ANALYST remains largely unfilled. We shall go steadily on, however, as we have been doing, exposing the nefarious devices of adulterators and charlatans of every description, and thereby placing the public on its guard against the fraud and imposition of unscrupulous knaves. Our steadily developing circulation is constantly widening the radius of our influence, and with growing strength comes increased confidence. Our patrons will find a number of new features which, we believe, will be in the line of improvement presented for their consideration during the coming year.

We wish our readers health, prosperity, and

A MERRY CHRISTMAS.

CO-OPERATION IN HOUSEKEEPING.

Whoever has lived in Germany knows what a hold the *Verein* (the German word for union or association) has upon the people. In Vienna, Austria, they have such a *Verein*, which has a co-operative store, provides seamstresses and other household workers, has a cooking school for domestics, and is managed and run entirely by women. Any union of people, small or great, for discussion or work, seems to be called a *Verein*. It may be for singing, for discussing philosophy or pedagogics; it may be purely social; or it may have its basis in some common trade interest—the bakers, the carpenters, the clothiers, all have their *Vereins*, existing for both social and business ends. Such unions among women are, of course, more rare, since the majority of women are still exceedingly domestic and interested in but few things outside their home. We do find, however, various philanthropic *Vereins*, made up wholly or partly of women, and in the larger cities they have followed the national instinct for organization and have started housekeepers' clubs, *Hausfrauen Vereine*. A correspondent of the *Dolgeville Herald* thus describes one of these, the *Wiener Hausfrauen Verein*: During a year's residence in Vienna I was a member of the *Wiener Hausfrauen Verein* and enjoyed all its privileges. We had set up our household goods and were trying to keep house in this strange city, but every shopkeeper seemed to be a rascal and some of what we had looked upon as the very necessaries of life were not to be bought at any price. Just at this juncture, when life seemed almost too difficult to be worth while, came the *Hausfrauen Verein* to the rescue, and so great was the help it gave me that I have never felt that my debt to it was cancelled by the membership fee. From the time I became a member I bought from the co-operative store of the club nearly all food and house-furnishing goods, used its list of reliable firms in all its branches of business, and its recommendations for seamstresses and other hand-workers. There were no more profitless mornings spent in shopping, there was no more vexation of soul over adulterations and false weights. My written orders came filled with the utmost care and were delivered by an intelligent man who could answer questions about goods not on the price list. During the year of my membership I made a careful study of the workings of this club, visited its cooking school and training school for domestics, and attended its annual meeting to hear the reports and addresses of its officers, and I came to believe that its success was owing to the enthusiasm and fine executive ability of a few women who had founded it and who had ever since faithfully served it. At this time, 1889, it had been in existence fifteen years, and had a membership of 2,600 women, representing as many families. Its intention was to forward "the practical interests of the household," but from this wide field it had selected two points of attack. It aimed to reduce the cost of living by furnishing goods of the best quality and at reasonable prices, and to provide good house service by means of a training school and a free intelligence office. This Vienna Housekeepers' Union I afterward found to be well known in Europe as a model of its kind. The one in Berlin failed to make its co-operative store a success, and with a greatly reduced membership now confines its attention for the most part to the running of a cooking school. All other housekeepers' clubs of which I was able to learn, no matter what the extent or success, existed mainly for business purposes. Consultation as to housekeeping methods formed no part of their work. The reason the German housewife does not study housekeeping is that she keeps house very much as her mother did, and those methods she learned before she was married.

The highly developed civilization of the older countries makes a certain mode of life the only practicable one for a given class. A thousand little conventions have planned and bounded your life before you come into it. In Germany even the palate seems to have yielded to centuries of training; certain tastes go with certain means. This makes such a degree of public cooking practicable as relieves the household from all baking and from the preparation of all food that can be cold, or indeed hot within certain limits. It greatly reduces the labor done in the house and renders a not too exacting routine possible. In these older countries the art of living when considered with regard to the means at disposal is a far more perfect thing with us. Taking the German housewife having an income say of $1,500 or $2,000; an income that in one of the smaller German cities would put her family among the well-to-do classes. Her house would be similar in arrangement to that of her friends and the mode of life familiar to her from childhood would fit into it like the parts of a puzzle. Having been trained in all domestic arts she only needs a little executive ability, and this quality is always at hand, plainly inherited along with her old mahogany and linen, to direct her competent servants and to achieve such results in her housekeeping as will be highly satisfactory to her family and friends. Whatever new problems are to meet the younger generation of European housekeepers, the life of the past and present has not been difficult, once granted the money necessary for a certain style of living. If a housekeepers' club can help her to buy her sugar and tea a little cheaper per pound it is all she wants of it.

It seems to us that American housewives could be materially benefited by similar unions and we shall take an early occasion to refer to the subject again.

HOUSEHOLD.

GREASE ERADICATOR.

Mix equal parts of ether, alcohol and water. This fluid preparation is to be used as follows: Place under the fabric to be cleaned a piece of blotting paper, moisten the sponge first with water, then with the grease eradicator and rub and pat, when the grease will be immediately absorbed, partially saponified and absorbed by the blotting paper.

The following is an excellent means of gelatinizing benzine, which form of gelatinizing benzine has been very popular as a grease exterminator. It has the appearance itself of grease, alhough it acts very differently: Take of white soap, 4 ounces; spirits of ammonia, 1 fluidounce; benzine, q. s. Dissolve the soap by heating with 6 fluidounces of hot water; add the ammonia, and then enough water to make 1½ pints; then add ½ pint of benzine and shake thoroughly. When the above mixture is well emulsified, take out a teaspoonful and place it in a bottle of about 8 ounces capacity; then add a little at a time of benzine. with constant and vigorous shaking; this will result in thoroughly gelatinizing the benzine, which can then be used to rub over grease spots for the purpose of removing them. It would be best to apply this as in the preceding instance, by first putting a blotting paper under the fabric and then applying with a small sponge. When carefully and properly made, this forms a very excellent preparation for the purpose. Any good white medium soap would do, but castile soap seems rather too hard for the best of satisfaction.

COTTONSEED OIL.

The average housekeeper has a bitter prejudice against cottonseed oil, and she cannot be persuaded that in many culinary operations it is far preferable to lard or butter. The best authorities are clearly of the opinion that this oil, whether used alone or with other oils or fats, is a perfectly wholesome and nutritious food, and as easily digested and disposed of in the system as any of the commonly employed fats.

It is cited that, throughout the cotton-growing States, it has been, for a long time, very largely used, and the medical faculty of Arkansas University states that it is to be preferred to other fats in many respects, "agreeing with the most delicate stomachs, whether used in baking or in frying," and that "not one instance has ever been given of health being in any manner impaired by the use, however free, of cottonseed oil in food."

They state that thousands of hands employed in the cottonseed oil mills are in the habit of making their dinners on the crude oil by dipping their bread in it, and yet from this free use of it nothing has ever resulted but the best of health.

How to Prepare Beef Tea.—Beef tea as ordinarily prepared is of little nutritive value; but if the white of an egg be mixed with a cupfull of beef tea and heated to about 160 deg. Fahrenheit, the value of the beef tea is greatly enhanced. Again, if minced raw beef be just covered with very weak hydrochloric acid (four drops of acid to one pint of water), and left to macerate for the night, the liquid strained off and squeezed out of the flesh by wringing in a cloth contains so much syntonin as to make it highly nutritious when neutralized; such a liquid will remain clear after boiling to remove the raw flavor.

Chicken a la Tartare.—Singe the chicken, and split down the back. Wipe thoroughly with a damp cloth. Dredge well with salt and pepper, cover thickly with softened butter, and dredge thickly on both sides with fine, dry bread crumbs. Place in a baking pan, the inside down, and cook in a very hot oven thirty minutes, taking care not to burn. Serve with Tartare sauce.

Tartare Sauce for Above.—The yelks of two uncooked eggs, half a cupful of oil, three tablespoonfuls of vinegar, one of mustard, one teaspoonful of sugar, one-quarter of a teaspoonful of pepper, one teaspoonful of salt, one of onion juice, one tablespoonful of chopped capers, one of chopped cucumber pickles. Make the same as mayonnaise dressing. Add the chopped ingredients the last thing. This sauce can be used with fried and broiled meats and fish, and with meats served in jelly.

Mayonnaise Dressing.—A tablespoonful of mustard, one of sugar, one-tenth of a teaspoonful of cayenne, one teaspoonful of salt, the yelks of three uncooked eggs, the juice of half a lemon, a quarter of a cupful of vinegar, a pint of oil, and a cupful of whipped cream. Beat the yelks and dry ingredients until they are very light and thick, with either a silver or wooden spoon—or, better still, with a Dover beater of second size. The bowl in which the dressing is made should be set in a pan of ice water during the beating. Add a few drops of oil at a time until the dressing becomes very thick and rather hard. After it has reached this stage the oil can be added more rapidly. When it gets so thick that the beater turns hard, add a little vinegar. When the last of the oil and vinegar has been added it should be very thick. Now add the lemon juice and whipped cream, and place on ice for a few hours, unless you are ready to use it. The cream may be omitted without injury.

Salad Dressing Without Oil.—The yelks of four uncooked eggs, one tablespoonful of salt, one heaping teaspoonful of sugar, one heaping teaspoonful of mustard, half a cupful of clarified chicken fat, a quarter of a cupful of vinegar, the juice of half a lemon, a speck of cayenne. Make as directed for "mayonnaise dressing."

Puree a la Beaufort.—Ingredients: Two leeks, six turnips, a little fresh butter, six potatoes, one gill of cream, one quart white stock, half a pint Jardiniere. Preparation: Cut up the white part of the leeks, turnips and potatoes; put a little butter in a stewpan, place on a slow fire, and let it brown for half an hour, then add the stock; season with salt and pepper. When cooked pass through a hair sieve; warm again and pass through a very fine sieve, or better still, a tammy cloth; warm again, but do not let it boil. When on the point of sending to table, add the cream previously "scalded" and the Jardiniere. Serve a few croutons of dried bread separately.

Punjab Hot Pot.—Ingredients: Two quarts white stock, a little curry powder, a small lobster, half a pound veal quenelle forcemeat, six onions, a little butter. Preparation: Slice the onions, put into a stewpan, fry lightly, add curry powder; a few minutes after add the stock and a little salt. Cut the lobster into small diamond shape pieces, poach the quenelle, to which you will have added a little curry powder, and some lard about the size of half teaspoon. Serve with lobster and quenelles placed in tureen. History: The punjab hot pot was originally prepared by the writer on May 13, 1873, at Messrs. Spiers & Pond's Mansion House restaurant, where it has since been much in favor amongst admirers of Indian dishes. The Purée Beaufort, first prepared also by the writer at the same establishment, is but a few weeks old and has therefore to live longer before a verdict of success can be passed on it.

Creamed Oysters.—A pint of cream, one quart of oysters, a small piece of onion, a very small piece of mace, a tablespoonful of flour, and salt and pepper to taste. Let the cream, with the onion and mace, come to a boil, Mix flour with a little cold milk or cream, and stir into the boiling cream. Let the oysters come to a boil in their own liquor, and skim carefully. Drain off all the liquor, and turn the oysters into the cream. Skim out the mace and onions, and serve.

Potato Fritters.—One pint of boiled and mashed potato, half a cupful of hot milk, three tablespoonfuls of butter, three of sugar, two eggs, a little nutmeg, one teaspoonful of salt. Add the milk, butter, sugar and seasoning to the mashed potato, and then add the eggs well beaten. Stir until very smooth and light. Spread, about half an inch deep, on a buttered dish, and set away to cool. When cool, cut into squares. Dip in beaten egg and in bread crumbs, and fry brown in boiling fat. Serve immediately.

Cod-Fish Balls.—One pint of finely-chopped cooked salt fish, six medium-sized potatoes, one egg, one heaping tablespoonful of butter, pepper, two tablespoonfuls of cream or four of milk. Pare the potatoes, and put on in boiling water. Boil half an hour. Drain off all the water, turn the potatoes into the tray with the fish, and mash light and fine with a vegetable masher. Add the butter, pepper, milk and eggs, and mix all very thoroughly. Taste to see if salt enough. Shape into smooth balls the size of an egg, and fry brown in boiling fat enough to float them. They will cook in three minutes. If the potatoes are very mealy it will take more milk or cream to moisten them, about two spoonfuls more. If the fat is smoking in the center, and the balls are made very smooth, they will not soak fat; but if the fat is not hot enough, they certainly will. Putting too many balls into the fat at one time cools it. Put in say four or five. Let the fat regain its first temperature, then add more.

Hard and Soft Water.—All cooks do not understand the different effects produced by hard and soft water in cooking meat and vegetables. Peas and beans cooked in hard water containing lime or gypsum, will not boil tender, because these substances harden vegetable caseine. Many vegetables, as onions, boil nearly tasteless in soft water, because all the flavor is boiled out. The addition of salt often checks this, as in the case of onions, causing the vegetables to retain the peculiar flavoring principles, besides such nutritious matter as might be lost in soft water. For extracting the juice of meat, to make a broth or soup, soft water, unsalted and cold at first, is the best, for it much more readily penetrates the tissue; but for boiling where the juices should be retained, hard water or soft water salted is preferable, and the meat should be put in while the water is boiling, so as to seal up the pores at once.—*Journal of Chemistry*

Match Scratches.—For marks made by scratching matches across white paint, rub with half a sour orange or lemon, then wash with whiting, rub well and dry thoroughly.

Nickel Silver.—Nickel silver mounts and ornaments can be kept bright by rubbing with a woolen cloth saturated with spirits of ammonia.

Deodorizers.—Coffee pounded in a mortar and roasted on an iron plate, sugar burned on hot coals, and vinegar boiled with myrrh and sprinkled on the floor and furniture of a sick room, are excellent deodorizers.

Putting on Gloves.—Fastening the first button last, when putting on a glove for the first time, makes a good deal of difference in the fit, although it may seem but a very little thing. It does not strain the part of the glove that is the easiest to strain at first, and prevents the enlarging of the buttonhole, either of which is sure to take place if you begin at the first button to fasten the glove.

New Mode of Washing.—The ill effects of soda on linen have given rise to a new method of washing, which has been extensively adopted in Germany and introduced into Belgium. The operation consists in dissolving two pounds of soap in about three gallons of water as hot as the hand can bear, and adding to this one tablespoonful of turpentine and three of liquid ammonia. The mixture must then be well stirred, and the linen steeped in it for two or three hours, taking care to cover up the vessel containing them as nearly hermetically as possible. The clothes are afterwards washed out and rinsed in the usual way. The soap and water may be reheated and used a second time, but in that case half a tablespoonful of turpentine and a tablespoonful of ammonia must be added. The process is said to cause a great economy of time, labor and fuel. The linen scarcely suffers at all, as there is little necessity for rubbing, and its cleanliness and color are perfect. The ammonia and turpentine, although their detersive action is great, have no injurious effect upon the linen, and while the former evaporates immediately, the smell of the latter is said to disappear entirely during the drying of the clothes.

A Good Disinfectant.—Dissolve half a drachm of nitrate of lead in a pint of boiling water, then dissolve two drams of common salt in eight quarts of water. Pour the two mixtures together. After the sediment has settled the liquid is a saturated solution of chloride of lead. A cloth dipped in it and hung up in a room will purify a fetid atmosphere. It may also be used to pour down a sink, drain or water-closet. This is very cheap, as a pound of nitrate of lead will make several barrels full of the disinfectant.

Spots on Paintings.—A few drops of ammonia in a cupful of warm rainwater, carefully applied with a sponge, will remove spots from paintings and chromos.

Plate Glass.—To polish plate glass and remove slight scratches, rub the surface gently, first with a clean pad of fine cotton wool, and afterwards with a similar pad covered over with cotton velvet which has been charged with fine rouge. The surface will, under this treatment, acquire a polish of great brilliiancy, quite free from any scratches.

Dr. Ernest Hart discourses very eloquently and with much common sense in the *Daily Graphic* on the question "Where are the Cooks?" He says there is a dearth of good cooks, because (1) of the utter inefficiency and wastefulness of our cooking and marketing arrangements, which make it almost impossible to cook a good dinner on a small scale, except at an outlay quite out of proportion with the result and with the needs of all but large households; (2) of the utter incapacity of the average mistress of a household to order a good, small and expensive dinner; and (3) because servants are neither trained properly, treated properly, nor supplied with the necessary apparatus for efficiency.

BRAN EATING.

WHAT MILLERS THINK OF IT.

The *Milling World* gives some good reasons why civilized people prefer fine and refined wheat flour. It says in spite of all that the bran-cranks can write or say to the contrary men and women instinctively turn from coarse meal to fine flour, from bran bread to branless bread. The mixed diet used by civilized nations makes up for all the possible loss of certain elements that are taken out of wheat flour along with the bran and stuff. What the consumer does not get in his bread he gets in his meat, in his fruit, in his vegetables. There is good matter in bran from a scientific standpoint, but science has shown that the human stomach is practically unable to digest bran. Mege-Mouries shows by incontestable evidence that only $\frac{1}{125}$ of 1 per cent of the bran fed to a hungry man or vigorous dog is absorbed on the passage. That means that, in order to absorb 1 lb. of bran, a man must eat 12,500 lbs. of bran. The bran-faddists urge that, even though not much of the bran may be taken up by the system, the presence of it in the intestines acts as a "gentle laxative," and thus benefits the whole system! As though a constant irritation of the absorbents, implying a debilitating and disgusting constant diarrhœa, were the only object for which the human intestines are designed! Intemperance in the bran habit has ruined many healthy beings, and it speaks well for the nation that white bread is preferred, and that bran-fodder is a mere side-dish. The usual breakfast dish of oatmeal, saturated with sugar and mixed with milk, is a great producer of dyspepsia. The milk curdles in the stomach and encases the oats so that the gastric juice can not act upon it. When the curds break apart, after action by heat and the motion of the stomach, both curd and oats pass into the intestines, to finish their "gentle laxative" work. Heartburn and undue peristaltic motion follow. It is a big price to pay for a fad. Millers are accused of crime in producing white flour. The faddists say that white flour is the cause of toothlessness and hairlessness. Yet the very men who founded the bran fad acknowledge the inability of the human stomach to digest bran. What is the miller to do? The human race was afflicted with baldness and toothlessness centuries before white flour was known. It is possible that both these afflictions are less prevalent now than in olden times. All the olden-time pictures and statues of the dead races showed up a good percentage of bald heads; and tooth pulling and filling, and even artificial tooth making, were practiced away back in history. Out of the ruins of Pompeii and Herculaneum are taken whole sets of false teeth, along with loaves of bran-bread. Among the ancients the "toothless hag" was a stock figure. Homer was bald. Diogenes was bald. Ulysses was bald. How did they become so on bran or whole-grain bread, such as was used in their times? The miller of this day is making no mistake in his work. No civilized nation, with a mixed diet, is in any danger from the use of white flour. The "sweet and pleasant flavor" of bread made out of old buhr flour or ruder meals was due to no wholesome, nutritious quality in the flours or meals used. It was simply the dirt, that is, the non-floury parts of the wheat berry incorporated in the product of rude milling, that gave that flavor. The bread is more nourishing without it, and more digestible without it. Modern milling is all right. The human intestines are not intended for mere bran-conveyors. The bran should go to the bran bin, and from there to the animals that can digest it. Men are not among those animals. Those who mistake the flour of dirt for a natural characteristic of flour are not likely to be safe guides in anything relating to flour. Unrefined sugar is noted for its "flavor," but the flavor is merely the dirt or extraneous matter in the sugar. So it is with unrefined flour. The stalk of the wheat is quite as digestible as the bran, and is quite similar in composition. The bran-faddists ought to insist on smashing bran, awns and stems all at once into meal. Then they would have a meal in which nothing is wasted—except the consumer. The consumer should be guided by experience. If bran agrees with him, he is right in eating it. If it disagrees with him, he is right in refusing to eat it. The moralizers, who are trying to make out that the millers are doing a great wrong in making pure flour, have everything against them nowadays.

HYGIENIC.

OATMEAL.

THE OTHER SIDE OF THE QUESTION.

We have published two articles in which we have tried to show that in the use of oatmeal there is a verification of the old saying that one man's poison is another man's medicine. The *Practitioner's Monthly* states another side of the question tersely and clearly as follows:

A paragraph has been going the rounds of the medical press in which Benjamin Ward Richardson affirms that oatmeal is a frequent cause of dyspepsia, and he gives examples of heartburn and pyrosis caused by an oatmeal diet, which nothing could relieve until that article was banished, and which returned immediately if the use of it was resumed. The inference to be drawn from the report of these cases is that oatmeal is unwholesome and is a direct and exciting cause of dyspepsia. This we believe to be an unwarranted assumption unsupported by facts. There are many varieties of oatmeal and many ways of cooking it, or rather attempting to cook it, for as a matter of fact, it is frequently not more than half cooked. Richardson does not mention whether the oatmeal was thoroughly cooked or not, which makes all the difference in the world.

That oatmeal may disagree with some persons, we are prepared to admit. The same may be said of almost any article of diet in general use. But that oatmeal of good quality, properly prepared and thoroughly cooked, is unwholesome and directly responsible for many cases of dyspepsia, we do not believe.

Forty years ago dyspepsia was a much more common affection than it is now. At that time every other person suffering from chronic disease was supposed to have, or believed himself to have dyspepsia. At that time oatmeal was scarcely used as an article of diet in this country, save by a few of foreign birth. Now it has become an article of almost universal use, like bread and potatoes.

In very many homes breakfast is not complete without it, and yet dyspepsia does not begin to be so common a disease now as it was before oatmeal came into general use.

Like all starchy foods oatmeal requires thorough, prolonged and careful cooking, and even the steam cooked brands, which are much to be preferred, should be boiled fifteen or twenty minutes, notwithstanding the claim of the manufacturers that three or five minutes are sufficient. Oatmeal has come to stay and no amount of sophistry will ever be able to banish it from the American breakfast table.

POSITION IN SLEEP.

The necessity for uninterrupted and refreshing sleep is unquestionable. Sleep that is interrupted by whatsoever cause, loses its refreshing power and the person awakens to duty a loser.

It is unnecessary to repeat here the number of hours of sleep required for the different periods of life, but attention will be called to one point frequently overlooked by physicians when directing patients and others concerning their rest. This is position in sleep. When sleeping, it is necessary for breathing, circulation and often digestion to go on untrammeled—otherwise sleep is disturbed.

The proper position for securing the easiest discharge of all three of these important functions is probably as follows:

Lie on the right side (unless some physical ailment prohibits) with head slightly drawn down on the pillow, which should be five or six inches high. Flex the limbs slightly, allow no joint to rest upon another. Close the lips and breathe through the nostrils, not the mouth, unless nasal stenosis is present (in which event have removed the hypertrophied tissue). Have lights extinguished or removed to an adjacent room with connecting door open; if an hypnotic has been taken all talking and bustle in the room should cease, in fact everything conducive to sleep should be observed.

If free respiration alone were the desideratum, the lying on the back would allow more freedom of action to the muscles of respiration than any other position, but circulation and digestion have claims to be considered. So the lying on the right side, with the head slightly drawn down on a pillow five or six inches high, will give freer action to the external inter-costal and the cricoarytenoid muscles, and this position throws the stomach and liver downward and slightly forward, relieving the diaphragm of pressure. The arms should not be folded on the chest nor on the abdomen; for in women the chest needs greater freedom from weight than does the lower half of the trunk. This is possibly a provision of value to the *enceinte* woman. The reverse holds for a man, as he can tolerate for a short time only a weight on the lower portion of the trunk. So the upper extremities will rest most comfortably placing the right by the side of the body, with the left lying on the thigh.

The circulation.—The heart is beautifully poised in the thorax, swinging as it does in neither a vertical nor horizontal position when one is erect, but on assuming the recumbent posture on the right side it rests as it were in a hammock, lying almost horizontally, its action becoming less labored, its beats less frequent, its movements comparatively free from friction.

The right lung is probably divided into three lobes, so that in the recumbent position and to the right side the heart may press on the inner surface of the middle lobe without interfering with the action of the lower and upper lobes. In this proper position in sleep the liver and the loaded stomach are not harmfully contiguous to the structures between them and the heart.

Flexing to a high degree the extremities insures an unobstructed flow of arterial blood. Allowing no joint to rest heavily on another insures an unobstructed return of venous blood, and also obviates injury (by pressure) to the nerves. Nerves thus become obtunded and the sleeper is aroused with "cramping" muscles or with his leg or forearm "asleep."

The digestion.—Lying on the right side accomplishes rapid evacuation of the stomach and small intestines of their contents, from the fact, of course, that the pyloric orifice hangs downward and to the right, allowing unobstructed passage of food, as fast as digested, into the small intestines, where, during quiet sleep, absorption may take place and the residue pass through the cecal valve and on to the descending colon.—*Meaical Journal.*

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Impurities in Ice.—A great deal of careful experiment has shown that water in freezing largely expels its coarse, visible contaminations, and also that a large proportion of the invisible bacteria which it contains may be destroyed, even as many as 90 per cent. But still large numbers may remain alive, for many species are quite invulnerable to the action of cold. It has been found that in ice formed from water containing many bacteria, such as water with sewage contamination, the snow ice almost invariably contains many more living bacteria than the more solid, transparent part, so that the snow layer should be especially avoided in ice obtained from questionable sources.

MEDICAL.

ANTI-KAMNIA.

A correspondent asks, "What is anti-kamnia?" We have never analyzed it and therefore do not know. About a year ago *New Ideas* published the following information about it, which we give you for what it is worth. There is not sufficient general interest in the matter to warrant us in going to the expense of an analysis, which would authoritatively settle the question.

A formula based upon the reports of different chemists, claims the composition of anti-kamnia to be about as follows:

Acetanilide	85 parts.
Bicarbonate of sodium	15 parts.

Instead, therefore, of being a new coal-tar product, it is one of the many mortar and pestle mixtures represented as being a new chemical compound, and under this claim the pharmacist pays a high price for a simple and low-priced article

VACCINATION AGAINST SNAKE POISON

From time to time travelers in Central and South America have brought back stories of a process of vaccination in common use among the *Indios bravos*, or uncivilized Indians, against the bite of venomous serpents, but not until recently has any European or American undergone, or even witnessed the operation. In a recent number of the *Archives d' Anthropologie criminelle* a writer describes the vaccination as practiced upon himself, and gives strong testimony as to its protective value. Says he: Cocoyango removed one from a bottle containing many fangs of the *grago* (an extremely venomous serpent), and with it made three incisions near my ankle, each of them about an inch and a quarter in length. The wounds were allowed to bleed for a minute, during which time I became faint, and the perspiration stood in great beads upon my forehead or rolled down my face. He then dusted the wounds with a black powder, and the blood at once ceased to flow. This powder, I have since learned, is composed of the liver and spleen, dried in the sun, and powdered along with the poison glands of the snake. Cocoyango put some of the powder in his mouth, along with the green leaves of forest trees, and chewed them vigorously together, then applying his lips to the wounds on my ankle forced into them as much as possible of the saliva, just about as one would "blow up" a bladder, and the operation was finished. I have since been bitten seven times by exceedingly dangerous serpents, gragoes, coral snakes, etc., and I never experienced the slightest effects. The Galibis, Bonis, Emerillons, and other Indians, as well as the Bosso negroes, and other indigines of Guyana, proceed in the same manner. They go so far as to claim that the children of a person thus vaccinated are proof against the venom, sometimes for several generations.—*National Druggist.*

VEGETABLE DIGESTIVE FERMENT.

MM. Daccomo and Thomassi, says the *Pharmaceutical Journal*, have studied the action of *Anagallis arvensis*, which they find possesses the property of destroying rapidly and without pain fleshy growths, and even horny warts. They assumed that the plant continued a ferment, analogous in its action to pepsin and pancreatin, and instituted some experiments to decide the point. Some fresh meat and fibrin were placed in contact with a small quantity of the fresh plant reduced to a powder, and after being maintained at a temperature of 40 deg. C. for four or five hours, they were found to be considerably softened, being dissociated almost completely in about thirty-six hours, during which the temperature did not exceed 45 deg. The presence of a ferment was thus regarded as established, and the authors are stated to have succeeded in isolating it under the form of a white amorphous substance, easily soluble in water. It is said to have no action upon starch, and further details as to possible practical applications of the ferment are promised on the completion of continued researches.

PLASMODIUM MALARIÆ.

THE MICROBE OF MALARIAL FEVER.

Dr. Holsholt, of Stockton, Cal., says the *Monthly Magazine of Pharmacy*, has read a paper at the Medical Society of the State of California on "The Plasmodium Malariæ." After mentioning the principal ideas brought forward as to the nature of the disease from the time of Hippocrates to the middle of the present century, the author alluded briefly to the most noted germ theories, and the character of the different microbes claimed by various investigators to be the cause of malaria. 1. Salisbury's unicellular alga (palmella gemiasma). 2. Lanzi's germ ferment, identical with bacteridium brunneum. 3. Eklund's fungus, limnophysalis hyalina. 4. Kleb's and Tommasi-Crudeli's bacillus malariæ. 5. Laveran's oscillaria malariæ, now known as plasmodium malariæ. Since this French observer first published his fundamental researches (1881), many eminent investigators have corroborated his discovery, and have contributed largely to our knowledge of the parasite of malaria, having ascertained that it attacks the red blood corpuscles, lives and grows within them, and finally brings about disintegration. It can be observed as follows: After taking the proper precautions in removing the blood from the tip of the finger, it is fixed on cover glasses and heated, at a temperature of 105 deg. to 110 deg. C. (220 deg. to 230 deg. F.), for about half an hour. The cover glasses are left for twenty-four hours in a neutral solution, consisting of equal parts of a $\frac{1}{2}$ per cent aqueous solution of eosin, and a saturated aqueous solution of methylene blue, diluted one half with distilled water This is Romanowsky's color test. He examined the blood in this manner in fifty cases of different diseases, not malarial, and in health, without being able to detect anything at all resembling the microbe in question.

ADULTERATION.

A NEW SOLUBLE COCOA.

Our British cousins have again illustrated the old saw that if you want to learn anything one must go away from home. The *Confectioners' Union* of London, publishes the following:

"The 'inventive' American is to the front again. 'Servetus Taylor Achor, of 380 Sixth street, City of Brooklyn, in the County of Kings and State of New York, United States of America, confectioner,' has taken out a patent for invention, relating to an improvement in a composition which he claims to be both a confection and a basis for forming a chocolate beverage without boiling. For the benefit of Messrs. Fry, Cadbury, Rowntree, Caley and other British manufacturers of cocoa and chocolate, we divulge the secret of this surprising improvement in soluble chocolate. The firms mentioned are evidently asleep, for, according to Servetus Taylor Achor, they know nothing about the preparation of soluble chocolate. His mission in this world is to teach them. He takes chocolate or cocoa liquor, sugar and cream or condensed milk in about the proportions of one pound of chocolate, one and a half pounds of sugar, and one pint of cream or condensed milk, and combines these with heat into a thick paste, and then works into this thick paste an additional amount of sugar, until it becomes stiff enough to mould and handle. The additional sugar serves to absorb and diffuse the cocoa butter contained in the chocolate, without destroying the granular characteristics of the sugar, so that the compound, when put in hot water, will readily dissolve, the sugar uniting with the water carrying with it the cocoa butter, and rendering the whole compound so susceptible to the action of the water that it can be readily dissolved thereby. He then moulds this mixture into pieces of suitable size, and immerses them in a thick syrup of sugar and water until they are covered with crystallized sugar, when they are removed from the syrup and allowed to dry. This produces a hard, close covering of sugar all over the central mass, excluding the air and preventing fermentation and evaporation, so that the completed preparation will keep indefinitely. This preparation, he says, will dissolve readily in hot water without boiling, and will then form a delicious beverage. He further contends that chocolate and cocoa, as ordinarily prepared, cannot be so dissolved without boiling, so that he claims to obtain great advantage over other solid preparations in which chocolate or cocoa is the chief ingredient, for the combination of the ingredients in the way stated 'enables the chocolate and cocoa butter to be carried readily into solution with the other dissolving ingredients.' The crystallized coating 'also dissolves quickly and entirely in hot water, leaving no residuum.'"

All we have to say on the subject is: 1. That there is absolutely nothing new in this so-called invention. 2. If ever it is introduced the consumer will find it dear chocolate, when he has to pay the price of chocolate for fully 80 per cent of sugar and milk. 3. Not having seen it in this market we cannot say positively, but are strongly inclined to the opinion, that the solubility is obtained by the same processes as it is in most of the Continental chocolates by saponifying the cocoa fat with alkalies, which of course makes it unhealthy.

INFANT FOOD AND INFANT FEEDING.

THEORY SOUNDS NICELY, BUT PRACTICE PROVES IT VALUELESS.

There has lately been published in the far-off State of Texas a paper under the above title, which was read before a purely scientific (not medical) society, and was fathered by a gentleman who holds the chair of chemistry in a university. This gentleman not being a physician cannot be expected to give an opinion of any value in a matter which is purely a question of medicine and medical hygiene. In order that we may point out the fallacies of this gentleman's theories, we must briefly recapitulate what he says. As he has taken twenty pages to explain his theories, we cannot give more than a brief epitome of them. We may premise, however, by saying that if it were not that the article in question might be copied in other journals and fall into the hands of some superficial readers and thus do damage, we would not deem it necessary to notice it in any way. The paper starts out with the theory that a great deal of infant food is used because a great deal is sold. That great care is necessary in selecting such a food—so far the writer is right. But when he next says that an infant food must in its chemical and physiological properties resemble mother's milk, we cannot agree with him. Mother's milk is a very general term, and to say that all mother's milk is the best natural food for every infant of every age is to say what is clearly incorrect. The food for infants must be regulated acccording to the individual requirements of the infant and so must mother's milk; that is, just as nature adapts each mother's milk for the requirements of her infant so must also any infant food be adapted for each infant. The writer next attempts to prove by faulty and very incomplete statistics of mortality in Germany, that in the United States the mortality among infants brought up on infant foods is something enormous. What we have just said about the necessity of adapting infant foods to the requirements of the infant, he next admits, as also that many infants thrive on infant foods. He next claims that the only way we have for arriving at a conclusion with regard to the value of an infant food is to compare it with mother's milk. This would be all well enough if we had a standard of mother's milk or if we knew just what kind of mother's milk would be best adapted for every infant. As we do not and cannot know this it will be readily seen that this standard falls away. He next takes up the various constituents of human food and claims that there are five which are all contained in milk and that milk therefore is the best food. Here however he strikes a snag—for there is a variance between mother's milk and the milk of other mamalia. It is useless to follow up an argument based on a wrong starting point. Suffice it to say that the writer attempts by an analysis of various kinds of milk and a comparison with mother's milk to establish a standard This we have already proven to be impossible, because there is a fixed standard for the requirements of the infant. He next makes an analyis of all the various infant foods on the market and based on these he makes a mathematical calculation intended to show what the analysis would be after the various infant foods have been prepared according to instructions on the package and compares this with his standard, mother's milk, which we have already shown to be entirely erroneous. It is useless to follow this any further. We only need to call the attention of the medical reader to the fallacies we have already pointed out and the lay reader will understand this best when we call his attention to the fact that the age of an infant will make some mother's milk beneficial while a mother's milk that may be wholesome to another infant of a different age will be highly injurious.

In his resume the writer says that "it would appear both from physiological as well as from chemical grounds that none of the infant foods now on the market can be regarded as a proper substitute for woman's milk." The reasons for arriving at this conclusion he gives, but as they are all based on wrong assumptions they are valueless. He finds that there is not a single artificial infant food on the market that is of any value. We beg to differ with him and just point to one, Imperial Granum. We will drop all scientific investigation, though none can stand a thoroughly scientific investigation by a competent investigator better, and simply say that as facts are stubborn things, the experience of hundreds who have successfully brought up infants on Imperial Granum carries more weight than all the fine spun theories of even the best chemists. We are confronted by a condition, not a theory. For this condition we offer for the consideration of our readers the following attested facts.

The subject of feeding of infants, was discussed at the one hundred and twelfth annual meeting of the Medical Society of the State of New Jersey, at Spring Lake, New Jersey, May 28 and 29, 1878. Special report for the *Medical Record*, Vol. 13, No. 23. (Extract from the report.) "Answers to this question differed with the residence of the physician—the country and city manifesting each its peculiar needs. The mother's milk is generally conceded to be the best for the infant, but even when this is abundant, it may be disadvantageous for the individual living on it, and a substitute be necessary. Country practitioners recommend cow's milk as the best substitute, while many in cities and towns speak highly of condensed milk. Of the preparations so various and so highly commended by those who put them on the market, the Imperial Granum seems to hold the first place in the estimation of medical observers. All agree in condemning the use of nursing-tubes as unclean, even with the best of care."

The following letters from some of the best known men in the profession need no comment.

Copy of a letter from C. A. Lindsley, M. D., Professor of Materia Medica and Dean of the Faculty of the Medical Department of Yale College, to Professor T. G. Thomas, M. D., College of Physicians and Surgeons, New York:

NEW HAVEN, May 13, 1865

DEAR SIR—I take the liberty of introducing the bearer who wishes to bring to your notice a dietetic preparation made from certain kinds of wheat by a peculiar process. I have had a great many opportunities of observing its uses, particularly in the bowel complaints of children and infants. In some instances it was the only form of nourishment that would be tolerated, and which did not aggravate the intestinal disorder.

I can very cordially recommend it as a very superior article for the class of patients for whom that character of food is appropriate.

I am, very truly yours,
C. A. LINDSLEY.

Copy of a letter from Dr. L. J. Sanford, Professor of Anatomy and Physiology, Yale Medical College:

NEW HAVEN, Feb. 28, 1866.

PROFESSOR DUNGLISON, M. D., Philadelphia, Pa.

MY DEAR SIR—I take the liberty of calling your attention to a dietetic preparation called IMPERIAL GRANUM, which is extracted by chemical process from very superior wheat.

I have used it as an aliment, both for children and adults, in those cases where the stomach will not tolerate a more substantial diet, either from local or general irritation, with good results.

Very truly your friend,
LEONARD J SANFORD.

Copy of a letter from Dr. Stillman, an eminent physician of North Haven:

NORTH HAVEN, CONN., March 5, 1866.

DEAR SIR—I have used the IMPERIAL GRANUM in my practice and recommended its use to others in cases of debilitated stomach and bowels, and more especially for children with dysentheric symptoms. I believe it is the very best article of diet now in use and almost indispensable in children afflicted with the diseases mentioned above, also for children nursing the bottle.

Yours truly,
B. F. STILLMAN, M. D.

Copy of a letter from Dr. C. H. Webb, of Woodbury, Conn., to his brother, Dr. Z. Swift Webb, New York:

WOODBURY, CONN., Feb. 1, 1866.

DEAR BROTHER—I wish to call your attention to a medicinal food entitled IMPERIAL GRANUM. I have used it in my practice, and I think it is excellent for the sick in the various complaints in which it is used. I think you will like it as an adjunct to medicinal remedies.

Yours, C. H. WEBB.

Copy of a letter from Dr. Levi Ives, an eminent physician of New Haven Conn.:

NEW HAVEN, July 22, 1866

DEAR SIR—From my experience in the use of the IMPERIAL GRANUM, I have no hesitation in recommending it. I consider it peculiarly adapted to bowel complaints, accompanied with a delicate, irritable condition of the stomach. I have known it retained when all the usual diet forsuch cases has been rejected.

Yours, &c.,
LEVI IVES. M. D.

LOUISVILLE, KY., November 1, 1874.

DEAR SIR— * * * * * The class of cases in which the IMPERIAL GRANUM has been of most apparent benefit have been Inanition—wasting away—due to Malassimilation, Chronic, Gastric and Intestinal diseases etc., and I have no hesitancy in saying it has succeeded beyond my expectation with infants reared by hand in Foundling Hospitals and in private families.

Yours Truly,
J. A. LARRABEE. M. D.

JORDON HOUSE, TUNBRIDGE WELLS,
KENT, ENGLAND, November 30, 1874.

DEAR SIR— * * * * * A Food really possessing all the qualities claimed for the IMPERIAL GRANUM will be a precious boon to the chronic dyspeptics, for many of whom, hitherto, the only suitable nutriment has been Du Barry's Revalenta, which is much less appetizing than the GRANUM. * * * * *

Yours truly,
CAMPBELL MORFIT.

THE DISCOVERY OF AMERICA.

IS IT CORRECTLY CREDITED TO COLUMBUS?

[Concluded.]

It has been sufficiently demonstrated that the heads of the Church in Rome knew of the Icelandic discovery of America at the time, the date of the discovery, the year 1000, having been the exact date of the conversien of the entire Scandinavian North to Christianity; and that the Catholic Church, the *only* Church then, was quick to profit by this discovery and establish its own institutions in the new colonies across the ocean. Rome being possessed of these facts, Columbus, a devoted son of the Church, could not have failed to be. The knowledge he obtained in Rome he verified in Iceland, during the visit there in 1477. The famous French geographer, Malte-Brun, states in his "History of Geography" that "Columbus when in Italy had heard of the Norse discoveries beyond Iceland, for Rome was the world's center, and all information of importance was sent there." It is known also that Gudrid. the wife of Thorfinu Karlsefue, the principal colonist of Vinland (the present Massachusetts and Rhode Island. These localities are fixed by Humboldt in the second volume of the "Cosmos," also by Rafu), made a pilgrimage to Rome, in about 1028 or 1030, and told the holy fathers all about her three-years' stay in Vinland. Gabriel Gravier, in his able work, "The Discovery of America by the Northmen," says of this visit of Gudrid's:

"It is related that she was well received, and she certainly must have talked there of her ever memorable trans-oceanic voyage to Vinland and her three-years' residence there. Rome paid much attention to geographical discoveries, and took pains to collect all new charts and reports that were brought there. Every new discovery was an aggrandizement of the papal dominion—a new field for the preaching of the Gospel."

If Columbus should have acquired a knowledge of the accounts transmitted to us of the discoveries of the Northmen in conversations held in Latin with the Bishop of Skalholt and the learned men of Iceland, we may the more readily conceive his firm belief in the possibility of rediscovering a Western continent and his unwearied zeal in putting his plans in execution.

The testimony of Bayard Taylor, in his description of Iceland, is also important. His words are: "It is impossible that the knowledge of these voyages should not have been current in Iceland in 1477, when Columbus, sailing in a ship from Bristol, England, visited the island. As he was able to converse with the priests and learned men in Latin, he undoubtedly learned of the existence of another continent to the west and south; and this knowledge—not the mere fanaticism of a vague belief—supported him during many years of disappointment."

That Columbus fully expected to find a continent and knew with absolute certainty that such existed from the evidence of the Icelandic discovery that he had seen both in Rome and Iceland, is proved by the terms of his compact with the King and Queen of Spain.

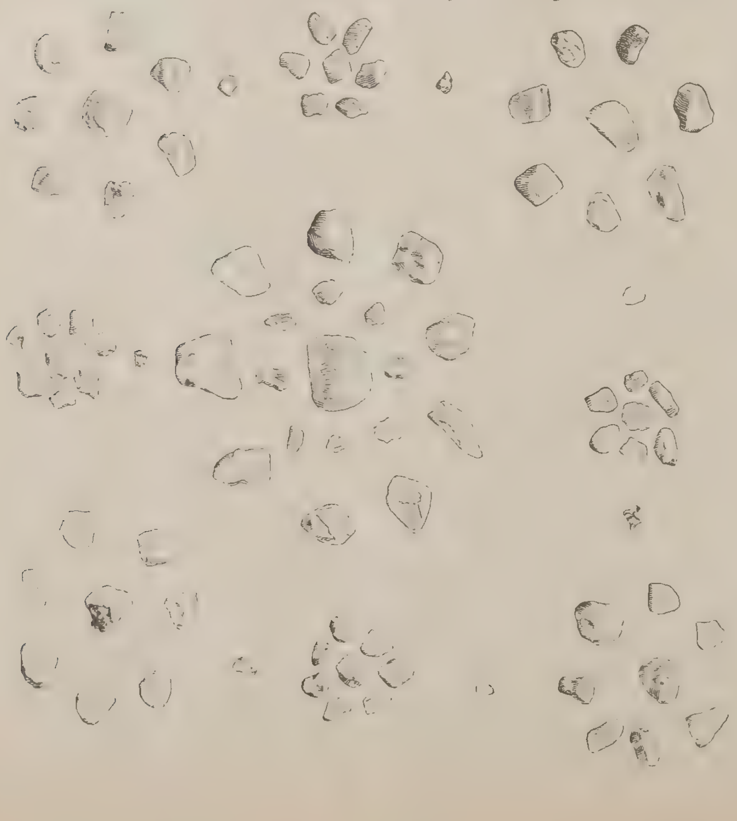
The historical event of the discovery of America is built on written documents, or manuscripts from Iceland, which do not exist here now, but are in the several collections of manuscripts, in the collections of Arni Magnusson, in Copenhagen, the Royal Library in Copenhagen, and so on. The exhibition of these manuscripts would in the most brilliant manner show the civilized world to whom we owe the discovery of America

We bring this article to a conclusion. It was principally extracted from the most interesting work, entitled, "The English Rediscovery of America," by John B. and Marie A. Shipley, and to that book we would refer anyone desiring further information.

BUFFALO LITHIA WATER

A POWERFUL SOLVENT OF STONE IN THE BLADDER.

The following plate is from a photograph and represents the exact size and shape of Calculi passed by the Hon. T. J. Jarrett, ex-Mayor of Petersburg, Va., under the action of Buffalo Lithia Water.



The original stone shown in the cut together with one from a similar case, will be on exhibition at Ditman's Pharmacy, Astor House, Corner Broadway and Barclay Street, New York, from where water may be obtained.

Statement of Dr. John Herbert Claiborne, M. A., M. D., of Petersburg, Va., ex-President and Honorary Fellow Medical Society of Virginia.

PETERSBURG, VA., Sept. 5, 1892.

E. C. LAIRD, Buffalo Lithia Sprnigs, Va.

My Dear Doctor:—I send by this mail a box of CALCULI, passed at various times within the last year by Hon. T. J. Jarrett, our former mayor, whilst drinking the BUFFALO LITHIA WATER. They give him but lttle pain now when passing. I have never critically examined the broken CALCULI, passed in such quantities from Mr. Jarrett's bladder, but am under the impression that the most of them were MANESIAN PHOSPHATES. There were specimens, however, which presented the appearance of OXYLATES, and, I remember, impressed me specially as being URIC ACID. I do not pretend to account for the mode of their solution by the Buffalo Lithia Water. There is nothing in its analysis which would warrant such results, but THE RESULTS ARE THERE, and seeing is believing. I can only suppose that in Nature's alembic there has been some subtle solvent evolved, too subtle to be caught by our coarse agents, which makes this wonderful disintegration. "There are many things in heaven and earth not dreamt of in our philosophy," and his is a short creed who believes only what he can prove or explain. Faithfully yours, JOHN HERBERT CLAIBORNE.

It is well known that stone in the bladder, for the most part Gout, Rheumatic Gout, Rheumatism, and also various forms of Dyspepsia and Nervous prostration have a common origin, viz.: excess of uric acid in the blood. It is evident, then, from the foregoing statement, that this water must possess extraordinary potency alike in all of these maladies. In Bright's Disease of the kidneys it is well-nigh specific.

Water in cases of one dozen half-gallon bottles, $5.00, f. o. b. here, and for sale by all first-class druggists.

Illustrated 32-page pamphlet, giving further information, sent prepaid on application to

THOMAS F. GOODE, Proprietor,

BUFFALO LITHIA SPRINGS, VA.

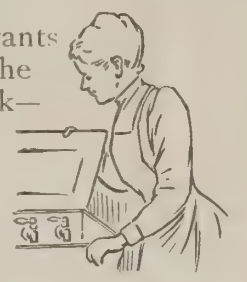
THE DEADLY HEATER.

The appliances of modern civilization, while multiplying our luxuries, and making false necessaries of them in many cases, have at the same time enhanced our physical dangers to a degree never dreamed of by our forefathers. Stationary basins, sinks and water-closets adjoining our bedrooms have slain their thousands, and that most pestiferous of conveniences, the furnace heater, its tens of thousands annually. Yet nobody wants a house "without modern conveniences." Unquestionably, the dwelling warmed in winter by a great furnace in the basement—a contrivance nobody bothers with or pretends to understand, except the man who tends it, and his knowledge is liable to be only a pretense—is much more cleanly, and, under favorable conditions, has a more agreeable temperature than one supplied with open fire-places or stoves. But it is far from being as healthful. The high temperature generally maintained by the aid of the heater weakens both the respiratory and nervous systems and through them the circulatory. One who is subjected to it will find himself much more liable to "take cold," from even slight exposure, than he would be under altogether different habitual conditions. And more especially does this danger threaten ladies and children who are most confined to the house during the inclement season of winter. Very often they are made so tender by the hot-house temperature surrounding them day and night that they are practically certain to take cold if they venture forth, even on sunshiny days, before winter is half over. And this peril is invited much earlier in the season than it would be were isolated fires started and maintained, as needed, in different apartments. In the latter case, if common sense had any influence in the family, heat would not be introduced into the bedrooms until the most severe weather set in, if indeed at all. But where there is a register in the wall, the thing is so easy one does not stop to think of the mischief likely to be done. Just a touch of the finger to the little lever, or wheel, banishes like magic the unpleasant chilliness which we are likely to feel most keenly at the very beginning of winter, and surrounds us with delicious warmth. Do we turn off the heat then? Well, hardly ever. We forget about it. Patrick goes down to the furnace and fires up for the night. We know nothing of that at the time. But hours later we wake in a torrid atmosphere, the air dry as in a furnace, and the hot blast from the open register almost stifles and roasts us. Then the next day we very probably have a cold and a sore throat—and wonder when and where we got it. While this is all true, it is not at all probable that saying it all over a million times, in the most forceful ways possible to language, would persuade one person in ten thousand to abandon the use of the heater and return to the dirty and troublesome systems of isolated fires in apartments. We are a people who "take chances" on conserving our comforts. But if we are wise we will minimize our risks as much as possible. "A cold" is not the simple annoyance merely, which many persons, especially the young, are prone to imagine it. While it may "go off by itself," the probabilities are that it will not. A few hours may develop it into a fatal pneumonia, or it may turn into a ferocious and chronic bronchitis. As a measure of intelligent precaution every household should keep on hand, ready for instant use, a bottle of that sovereign remedy, Ayer's Cherry Pectoral. Where there are children in the family, it is almost criminal recklessness to be without it, for its prompt employment may save a life. No other preparation is so reliable.

Rub In Rub Out is the way you have to wash clothes with soap. First you rub the soap in; that's work in itself. Then you rub it all out again over the washboard. If you're strong and healthy and rub hard enough, you may get the dirt all out, too. It's hard work, and every woman knows it. But it isn't the woman only that suffers. She's wearing the clothes out, rubbing them to pieces, all the time. It's just as hard for every **thing** as it is for every **body**.

Soak In Soak Out is **Pearline's** way of washing. All it wants is to be let alone. Put it in the water and it does its own work—yours, too. It brings the dirt out easily and quickly—no hard work, no wearing **rub, rub, rub,** no washboard. Doesn't that seem better? It is better. There's a saving of strength and a saving of clothes. And, what some women can't believe, it's absolutely safe. It's just as much so as any good soap.

Beware Peddlers and some unscrupulous grocers will tell you "this is as good as" or "the same as Pearline." IT'S FALSE—Pearline is never peddled, if your grocer sends you an imitation, be honest—*send it back.*
377 JAMES PYLE, New York.



Dyspepsia

Dr. T. H. Andrews, Jefferson Medical College, Philadelphia, says of

Horsford's Acid Phosphate.

"A wonderful remedy which gave me most gratifying results in the worst forms of dyspepsia."

It reaches various forms of Dyspepsia that no other medicine seems to touch, assisting the weakened stomach, and making the process of digestion natural and easy.

Descriptive pamphlet free on application to
Rumford Chemical Works, Providence, R. I.

Beware of Substitutes and Imitations.

For sale by all Druggists.

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will confer a favor by sending us the names of any of their friends and acquaintances who, they think, would be interested, and who would appreciate
A FREE SAMPLE COPY.

~~**DYSPEPSIA FLOUR.**~~
~~*Also Special Diabetic Food and Barley Crystals.*~~
~~UNRIVALED IN AMERICA OR EUROPE.~~
~~**Circulars and Baking samples Free.**~~
~~Write Farwell & Rhines, Watertown, N.Y., U. S. A.~~

Fine Table Wines
From our Celebrated Orleans Vineyard.

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GROWERS OF

Chateau d'Orleans, the highest grade Claret made in America.
Cabernet Blend, the richest and finest of Table Clarets.
O V Chablis, possessed of all the delicate pungency of its French counterpart.
O V Sauterne, with the exact character and *Seve* of imported Sauternes.
The **Chateau d'Orleans** and **O V Chablis** are sold in glass only.

"Eat BEECHNUT Hams and Bacon"

BUSINESS NOTES.

STATE OF OHIO, CITY OF TOLEDO, } ss.
LUCAS COUNTY, }

FRANK J. CHENEY makes oath that he is the senior partner of the firm of H. C. CHENEY & CO., doing business in the City of Toledo, County and State aforesaid, and that said firm will pay the sum of ONE HUNDRED DOLLARS for each and every case of CATARRH that cannot be cured by the use of HALL'S CATARRH CURE.

FRANK J. CHENEY.

Sworn to before me and subscribed in my presence, this 6th day of December, A. D. 1886.

A. W. GLEASON

} SEAL { *Notary Public.*

Hall's Catarrh Cure is taken internally and acts directly on the blood and mucous surfaces of the system. Send for testimonials, free.

F. J. CHENEY & Co., Toledo, O.

Sold by Druggists, 75c.

BRIGHT FACES PALING WITH ILL-HEALTH

Regain their pristine roundness and color, and the listless, haggard aspect of the feeble and nervous, is succeeded by the animated freshness of returning vigor when ladies troubled with anaemia or a disease of vital stamina, resort to Scott's Emulsion of Cod Liver Oil with the Hypophosphites of Lime and Soda, a preparation which has met with the approval of American, English and Continental physicians. For consumption, bronchitis, asthma and indeed all affections of the organs of respiration it is a most beneficent specific; it counteracts scrofula, rheumatism, remedies the wasting maladies of children, is free from a nauseous flavor and preserves its freshness under climatic and atmospheric conditions which would turn the ordinary preparations from the cod liver oil rancid. The Hypophosphites add greatly to its value as a nutrient of the feeble.

◆

HORSFORD'S ACID PHOSPHATE

For abuse of alcohol. It relieves the depression therefrom. Dr. W. Graeves, Northfield, Minn., says: "I have used it in cases of nervous prostration, and also in combination with other remedies in indigestion, it has proved as satisfactory as could be expected."

◆

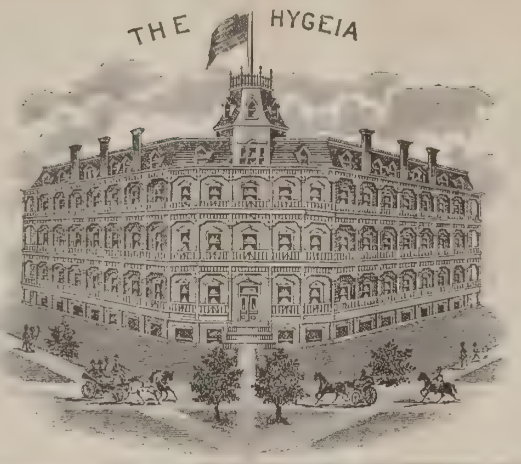
NEW SHADE ROLLER FACTORY.

Mr. Stewart Hartshorn reports that his new shade roller factory building in Muskegon, Mich., is completed and now occupied; also that the large addition to his East Newark factory is being pushed rapidly, and if the weather permits will be finished in two or three weeks. Increased room and heavy additions of special machinery will allow that promptness of shipment that is desirable.

◆

BIG TELESCOPES—An enormous telescope is being constructed in Paris for exhibition at the French Exhibition of 1900. It will cost £100,000, will be as high as the Vendome Column, and will enable the spectator to detect on the surface of the moon any spot of the size of one of the towers of the Church of Norte Dame.

By the munificence of Charles T. Yerkes, president of the North and West Chicago Street Railroads, the University of Chicago is to have a gigantic telescope. His instructions are to secure the largest and best telescope in the world, regardless of expense, and send the bill to him. This involves a donation of not less than half a million dollars, and will procure an instrument with a forty-five inch lens. The famous Lick lens is nine inches smaller in diameter.



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A SANITARIUM
AT CHATHAM, COLUMBIA CO., N. Y.
OWNED AND MANAGED BY
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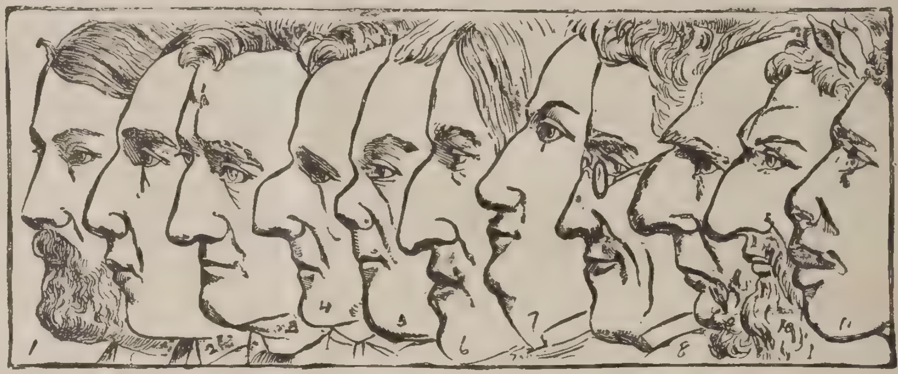
Newly erected and furnished in the latest and most approved style, for the special treatment of Cancer and Tumors.

TERMS MODERATE. SEND FOR CIRCULAR

HEADS AND FACES TELL THE STORY.



MEN AND WOMEN DIFFER IN CHARACTER

As they do in looks and temperament. No two look alike; all have peculiarities which you should understand at once; and IF YOU WANT SOMETHING that will interest you more than anything you have ever read, and enable you to understand all the differences at a glance, by the signs of character, send for a copy of

"HEADS AND FACES; How to Study them."

A new manual of Character Reading for the people, by Professor NELSON SIZER, the examiner in the phrenological office of Fowler & Wells Co., New York, and H. S. DRAYTON, M. D., editor of the *Phrenological Journal.* The authors know what they are writing about, Professor Sizer having devoted nearly fifty years almost exclusively to the reading of character, and he here lays down the rules employed by him in his professional work.

A knowledge of human nature would save many disappointments in social and business life.

This is the most comprehensive and popular work ever published for the price, 105,000 copies having been sold. Contains 200 large octavo pages and 250 portraits. Send for it and study the people you see and your own character, and if you are not satisfied after examining it, money will be returned to you.

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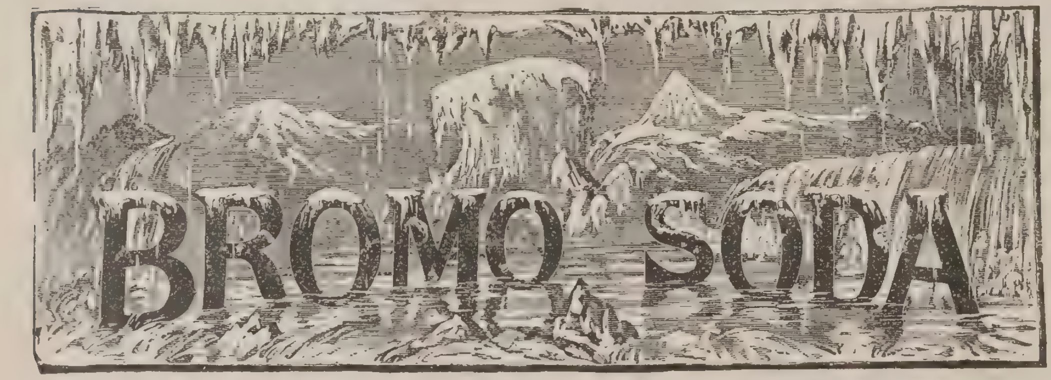

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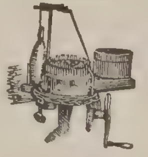

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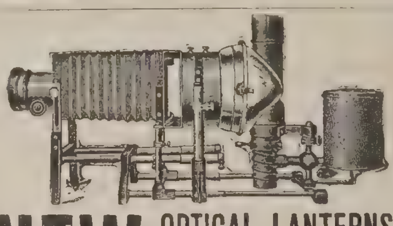

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